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THE FUTURE OF DERMATOLOGY IN AMERICA*

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The progress of dermatology during the past one hundred years has been admirably portrayed by Unna[1] in his oration on the history of eczema during the last century in England. When one realizes that Seguin Henry Jackson, in his unique treatise on "Dermatopathology," published in London in 1794, recognized only two chief forms of inflammation of the skin, erythema and erysipelas, the enormous amount of careful, conscientious labor that has been required to carry our chosen specialty upward, past the barriers of ignorance, prejudice and confusion, to its present position in the scientific world is almost inconceivable.

To the hardy pioneers we owe much. Bateman, Plumb, Jonathan Green, Anthony Todd Thompson, Neligan and Erasmus Wilson in England; Alibert, Beitt, Rayer, Devergie and Bazin in France; Hebra in Germany, and Duhring in America, each did his humble best to unfold the mysteries of dermatology and aid in blazing the pathway to a broader and more comprehensive knowledge of cutaneous medicine. With the passing of the years a healthy spirit of dissatisfaction and unrest gradually developed. Men grew weary of hypotheses and hungry for facts. To quote Flexner:[2]

> The fundamental difference between medieval and modern medicine emerges just here. Medieval medicine theorizes with or without experience. It starts out with a presupposition, a notion, a metaphysical principle, and purports thence to deduce its procedure. Intellectual processes of so dignified a description appear to the vitalist to dispense with the necessity of close observation; percussion, auscultation and the physical measurement of temperature are, in his opinion, crude methods, incapable of penetrating as deeply into the mysteries of disease as his own purely reflective processes. As opposed to this predominately deductive procedure, modern medicine strives to be honestly and modestly inductive—consulting the situation for relative facts, and cautiously drawing provisional conclusions, subject to revision whenever the issue of experience suggests modification. Science is indifferent as to where or how information is obtained. It is concerned only with the vigor, precision and consistency of observation.

Fortunately for us, the present period is one in which science is exceedingly popular, mainly because its benefits are felt and appreciated by the public at large, and the trend of events indicates the coming of great things; so if ever we had a right to become enthusiastic it is now. If the best and most lasting results are to be secured, however, the sphere of our activities must be materially widened, and for this reason the most important problem for us to solve is that of education. Education of the general medical man first, and a more conscientious, willing pupil never lived, and then, through him and through the representative lay press, the public. The importance of early extirpation in cancer, the value of prophylaxis in small-pox, the eradication of venereal disease — if ever these questions are solved it must be with the aid and hearty cooperation of an intelligent citizenship.

The majority of us will, I think, agree with Osler that there are few occupations of a more satisfying character than the practice of medicine, if a man can but once get oriented and bring to it the philosophy of honest work, the philosophy which insists that we are here, not to get all we can out of life, but to see how much we can add to it. From a humanitarian point of view we owe our fellow men much more than we have ever given them. In a host of matters they look to us for advice, guidance and protection.

In our own particular field the most crying need at this time is for a national asylum for lepers, a combined hospital and home where these poor unfortunates can be properly segregated, comfortably housed and intelligently cared for. As Charles J. White[3] has pointed out, the establishment of state institutions for the treatment of these patients is seldom practicable. Few communities will tolerate the presence of such a hospital in their immediate vicinity, and if they would, experience has shown that such establishments are relatively expensive and burdensome to the state supporting them, while, because of the comparative scarcity of the leper population, the inmates are usually so few in number and so mixed in nationality that their retention often amounts practically to solitary confinement. To render matters worse, the funds are seldom sufficient to permit of the employment of skilled and experienced medical men, and in consequence the unhappy patients frequently are denied even the benefit of modern methods of treatment.

Those who have given this matter much consideration and thought believe that the only way out of the difficulty is national control of the disease and its unfortunate victims, and with this opinion I am heartily in accord. In this way only can we hope to care properly for these wretched individuals, and save them from a worse fate than that which bitter circumstance has thrust on them.

* Chairman's address, read before the Section on Dermatology at the Sixty-Fifth Annual Session of the American Medical Association, at Atlantic City, June, 1914.

1. Unna: Brit. Jour. Dermat., 1902, xiv, 239.

2. Flexner: Medical Education in Europe, Carnegie Foundation for the Advancement of Science, Bull. 6, p. 5.

3. White, Charles J.: Jour. Cutan. Dis., 1913, xxxi, 799.

Not distantly related to the question of leprosy is that of syphilis. We may mistreat the leper, but all too often the poor syphilitic escapes treatment altogether, at least treatment that is worthy of the name. Formerly we had to contend with the protiodid-pill enthusiast, and to this day fully one-half of the tabetics and paretics that consult me have had months or even years of protiodid medication, a form of treatment that was usually as worthless as it was convenient and fascinating. Now we must battle with the salvarsanist, the misguided therapeutist who assures his intended victims that one or two small doses of neosalvarsan, administered intravenously and painlessly, will forever safeguard them from all the luetic complications that human flesh and blood are heir to. Mercury and salvarsan are invaluable drugs when properly employed, but casual treatment of a disorder like syphilis is to be deplored, for it can lead only to a false sense of security from which the patient generally awakens too late to be benefited by any plan of treatment, no matter how vigorous. One of the members of this Section, Dr. Corlett[4] of Cleveland, has done much to bring the profession to a realization of its responsibility in this matter and to the prevalence and danger of syphilis generally, and I feel that the subject cannot be agitated too frequently or too vigorously. It is absolutely essential that this affection receive more attention in our medical schools if it is to be successfully combated in actual practice.

While I am discussing scholastic needs, a word regarding the study and teaching of dermatology may not be out of place. What we most need here in America is more hospitals and wards in which young men may have an opportunity to work, wards having their own laboratories attached, with a sufficient number of interns to attend to the routine duties and relieve the instructors of a few of the numerous duties which are inseparably connected with research work. As an antidote for intellectual laziness, a vice which is as prevalent among young medical men as it is fatal to their professional interests, a year's internship in a properly managed institution of this kind should prove of great value, for it would serve to inculcate a habit of industry as well as a love of high ideals, and a practical working knowledge of dermatology along with a lasting desire to investigate thoroughly every pathologic condition with which the student may afterward come in contact.

The experiment that is now under way in two of our leading schools of employing full-time, salaried teachers in clinical medicine is an exceedingly interesting and important one, and if it proves successful, as I believe that it will, it is bound to have a stimulating and wholesome influence on medical education throughout the world.

The advertising "dermatologist" and the "cancer specialist" have long been thorns in the side of the legitimate practitioner of cutaneous medicine. While an ignorant and gullible public is in part responsible for the existence of these parasites, I am not sure that we ourselves are wholly without blame. As Donaldson[5] has intimated:

> Results are what the people want, and what they are going to have, if not through ethical channels they will try the so-called irregular class of practitioners. The quack is ever an optimist, you and I are prone to be pessimists, or as we grow older inoculists. A careless diagnosis, or more frequently no diagnosis at all, is mainly responsible for the quack doctor. We have found that it is impossible to legislate these fakers out of existence, but with a learned and capable profession that is willing to take the time and trouble to do the work that will give relief, the quack will soon become a thing of the past.

I do not believe that all of us realize and appreciate the enormous debt our profession owes to certain of the journals and newspapers here in America for the splendid fight they have made in behalf of pure food, honest drugs and a clean medical profession. As I have already suggested, these reforms have come largely through the education and enlightenment of the general public — few intelligent persons care to be doped or poisoned or swindled, and once their eyes are opened and the source of danger ascertained they can usually be depended on to protect themselves. Quackery and patent medicines have received some of their hardest jolts through the columns of representative lay journals. New York has her *Collier's* and her *Harper's*, Philadelphia her *North-American*, Chicago her *Tribune*, and out in the short-grass country we have the St. Louis *Star* and the Kansas City *Star*, two periodicals that can always be found on the right side when it comes to a fight for decency and the square deal.

Proprietary medicines, which are but patents in pseudoscientific garb, deserve a paragraph all to themselves. It is only during the past few years that the regular medical profession has awakened to the fact that various pharmaceutical houses have long been using it as a stalking-horse for marketing preparations of questionable composition and often of more than questionable therapeutic value. The Council on Pharmacy and Chemistry of the American Medical Association began its propaganda for reform in 1905, and, despite criticism, misrepresentation and bitter opposition, often from the most unexpected sources, this body has supplied us with authentic information concerning the worth, or worthlessness, of a majority of the vast number of "proprietary" preparations now on the market. Some of you may question the advisability of discussing a subject of this kind in an address on dermatology. Gentlemen, whenever a specialist loses sight of the fact that he is a physician, first, last and all of the time, he is no longer fitted to practice dermatology or any other branch of medicine. As Pusey[6] has already told us:

> It is very essential that we know what we give our patients. And the revelations in regard to proprietary remedies have shown above all things that there is no reasonable way of being certain of their composition except by independent examination of them, which the prescriber is himself unable to give. If there is to be any certainty, proprietary medicines, domestic or foreign (and the foreign ones are as bad as our own) must have some independent supervision and be authenticated by an unbiased authoritative examination. Oftentimes even the manufacturer himself does not know exactly what the remedy contains. In short, we have no protection against either ignorance or dishonesty, unless we provide it.

In the Council on Pharmacy and Chemistry we have a board of able, unselfish scientists who are looking after not only our interests, but the interests of every honest drug manufacturer as well, and it is our duty to assist these men in every possible manner. And

4. Corlett: Jour. Cutan. Dis., 1914, xxxii, 117.
5. Donaldson: Pennsylvania Med. Jour., October, 1911.
6. Pusey: Jour. Cutan. Dis., 1913, xxxi, 221.

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now, may I ask, how many of us are doing this? Did you ever stop to consider that when you allow your name to appear as an "associate" or "department" editor on the staff of a medical journal, or subscribe or contribute to it in any way, that you are standing sponsor not only for its editorial policy, but also for its advertising standards? How many of the privately owned medical journals in America possess a respectable or even a decent advertising standard? Fortunately, a few of them do, and the number is gradually increasing; but it is not increasing so rapidly as it will when the profession finally realizes the real character of the wares advertised. Then even the most venal of medical journals will find it inadvisable to accept patronage of this character, and not until then "will the erstwhile 'ethical proprietary' become openly what it has always been secretly, a plain patent medicine, and go frankly to such of the newspapers as will accept it. Ultimately, of course, as the medical profession awakens to the evils of the proprietary-medicine business, the fraudulent proprietary will go out of existence, and with it will go the low-grade medical journal."[7] And how can we dermatologists aid in this general clean-up? First, by refusing to prescribe remedies concerning the composition of which we know nothing, and second, by supporting our state journals, the majority of which are clean and dependable. For those of us who care to write, these periodicals, together with THE JOURNAL of the American Medical Association and the *Journal of Cutaneous Diseases Including Syphilis,* which at this time is unquestionably the best dermatologic journal published in any language, furnish avenues of ethical publicity amply sufficient for all present needs.

The questions of dermatologic classification and nomenclature, like the poor, we have ever with us. While neither very young nor entirely unsophisticated, I do not care to break a lance with those of my colleagues who are wedded to the alphabetical system of arrangement, irrational though it may seem, or with others who hold that it would simplify matters if every freshly discovered dermatosis were tagged with the cognomen of the individual who first described it; but I do think that the time has arrived when some of our distinguished confrères might safely extract urticaria pigmentosa, erythema solare, epidermidolysis bullosa and dermatitis repens from among the neuroses and distribute them around in the various pigeonholes in which the consensus of opinion would indicate they really belong. Likewise, the advisability of grouping lichen nitidus with the diseases of the appendages of the skin, and pediculosis corporis with the anomalies of the circulation appears somewhat questionable.

The honor of unearthing causative factors in disease is generally shared alike by pathologist and clinician. It is unfortunate that so much of the splendid clinical material in our large cities is practically wasted, so far as research is concerned. In dispensaries and hospitals having an annual registration running into the hundreds, not a single good piece of investigative work has been done in years. The new cases are hastily glanced over, a snap-shot diagnosis made, a prescription for a stock preparation handed out, and the patient goes his way, often carrying with him evidence which, if properly elucidated, would go far toward clearing up some of the problems which now puzzle us so much. The path of least resistance is the one invariably trodden by the multitude, but he who habitually treads it does not as a rule get very far in dermatology or in anything else.

The scientific world is indebted to several members of this Section, and particularly to Johnston and Schwartz,[8] Johnston[9] and, more recently, Schamberg, Kolmer, Ringer and Raiziss,[10] for careful and exhaustive studies on metabolism in various cutaneous diseases. Work of this character is not only difficult and laborious, but requires much skill and great care, for the complicated nature of the investigations renders the liability to error very great. I do not believe that we are at this time in a position fully to appreciate the value of these results, but, as Vaughan has said, no real addition to knowledge is ever wasted, and while all of the facts may not be of practical use at the moment of their discovery, the time is bound to come when each will be found to have served its purpose. In no other branch of medicine is the field for research so great as in dermatology.

Of the clearly defined disorders, it seems strange that verruca vulgaris and lichen planus have not been more thoroughly investigated from the bacteriologic side. Judging from a histopathologic point of view, the former is very probably the result of a localized microbic infection, and the latter a generalized spirochetal one. Neither should prove difficult to a skilled laboratory man employing modern methods. In matters of this kind it is seldom wise to stake too much on precedent.

The recent success of Bunting and Yates,[11] in their work on Hodgkin's disease, should prove a stimulus to all of us.

Of the border-line maladies, it would be well if Hazen's[12] careful and well-balanced studies on the leukemias were duplicated on the purpura group.

The period has been filled and you are growing weary. Ehrlich has said that he could wish for no better appellation than that of *Student und Arbeiter.* Let each of us strive to earn the right to an even nobler designation, that of *Student, Arbeiter und Erzieher.*

New Lathrop Building.

7. Keeping Alive the Low-Grade Medical Journal, Current Comment, THE JOURNAL A. M. A., March 14, 1914, p. 856.

8. Johnston and Schwartz: New York Med. Jour., 1909, xxxix, 535.
9. Johnston: Jour. Cutan. Dis., 1913, xxxi, 136.
10. Schamberg, Kolmer, Ringer and Raiziss: Jour. Cutan. Dis., 1913, xxxi, 698.
11. Bunting, C. H., and Yates, J. L.: Cultural Results in Hodgkin's Disease, Arch. Int. Med., August, 1913, p. 236.
12. Hazen: Jour. Cutan. Dis., 1911, xxix, 52.

Malta Fever in Peru.—Barton in 1911 was the first to report discovery of the *Micrococcus melitensis* in Peru, and von Lopez now reports in the *Cronica Medica,* 1914, xxxi, 58, a number of cases of Malta fever in his district. The first patient was a woman who cared for goats on a ranch; another was a young man who had apparently contracted the Malta fever from goat's milk; another, a woman, had a walking case of undulant fever, in which slight neuralgia and a rheumatoid pain in the shoulder and loss of weight were the only symptoms, except the period of slight fever each day. The triad of sweats, arthralgia and constipation is not always presented, nor the dissociation of the pulse and temperature, and the spleen is not always enlarged. The only constant symptom is the pain in one or more joints; it will not yield to any drugs or measures, and nothing seems to modify it. Hydrotherapy seems the only means to keep the temperature under control. Diphtheria antitoxin by the mouth or subcutaneously seemed to display beneficial action in some of the cases. Arsenic and iron are indicated to combat the hemolytic tendency of the disease.

INFLUENCE OF DIET ON THE TOXICITY OF SUBSTANCES WHICH PRODUCE LESIONS OF THE LIVER OR THE KIDNEY *

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In a former communication[1] we have described the effect of diet on the toxicity of chloroform and showed that a diet consisting of fat increases the susceptibility of the liver to the necrosis caused by chloroform, whereas a diet consisting in large part of carbohydrates has a protective action. The influence of diet on the toxicity of phosphorus was next tested because it produces profound changes in the liver. Phosphorus causes fatty degeneration of the liver, but its action is not limited to the hepatic cells, for the kidney, heart muscle and other parenchymatous tissues show fatty degeneration. A 1 per cent. solution of phosphorus in oil (oleum phosphoratum) was employed; the amount of oil administered by subcutaneous injection to white rats was very small, since the lethal dose was found to be from 0.07 to 0.08 c.c. per hundred grams of body-weight. The animals, which are omnivorous, were fed during six days preceding injection of phosphorus on a diet consisting of (*a*) oats and sugar, (*b*) pig's heart, or (*c*) beef-fat (Table 1).

TABLE 1.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Oil of Phosphorus per 100 gm. of Body-Weight, c.c.	Oats and Sugar	Meat	Fat
0.05	*	11	*
0.06	*	4	*
0.07	2	4	*
0.08	4	4	4
0.09	4	2	2
Average duration of life	3½+	5	3+

* Lived.

In the foregoing experiment pig's heart was given to the animals which received a diet of meat; in another series (Table 2) beefsteak was substituted. In both series the animals received the diet during six days, but in the present series after phosphorus had been administered, the animals receiving meat and fat were given oats in addition.

TABLE 2.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Oil of Phosphorus per 100 gm. of Body-Weight, c.c.	Oats and Sugar	Meat	Fat
0.05	*	4	*
0.06	2	3	*
0.07	*	3	3
0.08	2	3	1
0.09	3	1	2
Average duration of life	2½+	2½	2+

* Lived.

The effects of diet on the toxicity of oil of phosphorus exhibit no resemblance to those observed with chloroform. A diet composed in great part of carbohydrates has no protective action, whereas fat does not increase susceptibility to the poison. Indeed, there is no noteworthy difference in the toxicity with carbohydrate and with fatty diet. Both series of experiments show that the toxicity of oil of phosphorus is increased by a diet of meat; the fatal dose with a meat diet is probably less than 0.05 c.c., whereas with diet of carbohydrate or of fat the fatal dose is 0.07 or 0.08 c.c. The experiments furnish no explanation of the difference in the effect of diet on the toxicity of chloroform and of oil of phosphorus. Nevertheless, well-known differences between the action of the two substances may be cited. Chloroform produces necrosis of the center of each hepatic lobule, whereas phosphorus causes wide-spread fatty degeneration. Both substances are soluble in fats, but phosphorus is absorbed much less slowly than the volatile chloroform and is less destructive in its action on the hepatic cells. Chloroform affects the centers of the hepatic lobules, and study of control animals which have received a fatty diet shows that fat accumulates in greatest abundance about the central vein. Phosphorus, on the contrary, seems to produce more profound changes in the periphery of the lobule, for in the foregoing experiments, even after four days, proliferation of connective tissue has been observed in this situation.

Since our experiments have shown that the toxicity of a substance, namely, chloroform, which causes necrosis of the liver is diminished by a diet consisting in great part of carbohydrates and notably increased by a fatty diet, experiments have been performed to determine if similar relations to diet are exhibited by substances which produce necrosis of the parenchymatous cells of the kidney. Potassium chromate and uranium nitrate have been chosen because they have a selective action on the kidney, causing necrosis of the cells of the convoluted tubules, and because they have been much used to produce acute nephritis in animals; albuminuria occurs and casts are numerous within the kidney.

The animals were given, during nineteen days, diets consisting of (*a*) oats and sugar, (*b*) pig's heart or beef, or (*c*) beef-fat. At the end of this time an aqueous solution (2.5 per cent.) of potassium chromate was injected subcutaneously (Table 3).

TABLE 3.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Sol. of Potassium Chromate per 100 gm.	Oats and Sugar	Meat	Fat
0.1	*	3	6
0.15	5	3	3
0.2	8	1	3
0.25	1	2	2
0.3	3	1	1
Average duration of life	4¼+	2	3

* Lived.

Similar results were obtained in another series of experiments in which oats were added to the diets of meat and fat.

TABLE 4.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Solution of Potassium Chromate per 100 gm., c.c.	Oats and Sugar	Meat	Egg Yolk
0.05	*	2	*
0.1	*	2	*
0.15	*	4	*
0.2	*	5	6
0.25	5	3	3
Average duration of life	5+	3½	4½+

* Lived.

The experiments indicate that meat increases susceptibility to nephritis caused by potassium chromate, whereas a carbohydrate diet protects the kidney from injury. These conclusions are confirmed by an experi-

* From the Pathological Laboratory of the Washington University Medical School.

1. Opie, Eugene L., and Alford, Leland B.: The Influence of Diet on Hepatic Necrosis and Toxicity of Chloroform, THE JOURNAL A. M. A., March 21, 1914, p. 895.

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ment (Table 4) in which animals were given during six days diets consisting of (*a*) oats and sugar, (*b*) meat (beef) and (*c*) boiled egg-yolk, which contains 35 per cent. of fat, including cholesterin and lecithin. After injection, animals on diets of meat and of egg-yolk received oats in addition.

In the experiment recorded in Table 5, an aqueous solution (0.5 per cent.) of uranium nitrate was administered to animals which had been given during four days a diet consisting of (*a*) oats and sugar, (*b*) beef-steak or (*c*) beef-fat; the diets were continued six days after injection.

TABLE 5.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Solution of Uranium Nitrate per 100 gm., c.c.	Oats and Sugar	Meat (Beef)	Beef-Fat
0.05	*	*	10
0.1	6	*	8
0.15	7	7	6
0.2	9	4	7
0.25	*	4	6
0.3	10	8	9
Average duration of life	8+	5½+	7⅘

* Lived.

In another series of experiments animals were on various diets only three days, and oats were given to those receiving meat and fat immediately after injection. Differences referable to diet were much diminished, but carbohydrate, meat and fatty diets exhibited the relations noted in the foregoing experiment.

In a third series of experiments uranium nitrate in small doses was given to animals which had received the diets already enumerated during five days; after injection, oats were added to the diet of all animals (Table 6). The use of small doses of uranium nitrate in this experiment has made the protective action of carbohydrates very conspicuous.

TABLE 6.—LENGTH OF LIFE IN DAYS OF ANIMALS WHICH DIED

Solution of Uranium Nitrate per 100 gm., c.c.	Oats and Sugar	Meat (Beef)	Fat
0.02	*	9	7
0.04	*	*	*
0.06	7	7	9
0.08	*	10	11
0.10	*	11	7
Average duration of life	7+	9¼+	8¼+

* Lived.

A carbohydrate diet diminishes the toxicity both of potassium chromate and of uranium nitrate. The toxicity of potassium chromate has been greater after a diet of meat, but the toxicity of uranium nitrate has been somewhat greater after a diet of fat. The pathologic changes produced in the rat by potassium chromate and by uranium nitrate differ. Both substances produce necrosis of tubules in the cortex of the kidney, leaving the glomeruli apparently uninjured. Both substances produce albuminuria, and casts are numerous within the convoluted and straight tubules of the kidney. With potassium chromate the convoluted tubules undergo necrosis and with moderately large doses they may be almost uniformly destroyed. Uranium nitrate causes necrosis which is often limited to the cortical striae and to a narrow zone in the medulla just below the cortex; this distribution appears to be dependent on a selective affinity of the poison for the loops of Henle, which in the early stages of poisoning may exhibit almost uniform necrosis. After administration of relatively large doses of uranium nitrate there is abundant deposition of calcium salts within the dead tubular epithelium. The second series of experiments mentioned above shows that the occurrence of calcification bears a relation to the severity of intoxication. In four kidneys, after a diet of oats and sugar, calcification occurred only with the largest dose; in four kidneys, after a diet of meat, calcification occurred with the two largest doses. In five kidneys, after a diet of fat, calcification occurred in four.

CONCLUSIONS

The toxicity of phosphorus, which causes fatty degeneration of the liver, is greater in animals which have received a diet of meat than in those which have received diets consisting in large part of carbohydrates or of fat.

Animals on a diet rich in carbohydrates are much less susceptible to nephritis produced by potassium chromate and uranium nitrate than animals on a diet consisting of meat or of fat.

A diet of meat increases the toxicity of potassium chromate, which produces necrosis of the convoluted tubules of the kidney.

A diet consisting of fat increases the toxicity of uranium nitrate, which alters the loops of Henle and produces nephritis.

1806 Locust Street.

THE TECHNIC OF THE INTRADURAL INJECTIONS OF NEOSALVARSAN IN SYPHILIS OF THE NERVOUS SYSTEM

REPORT OF CASES

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In a preliminary report,[1] I described the technic employed in the treatment of syphilis of the nervous system by intradural injections, as first advocated by Ravaut. At the risk of repetition, I shall briefly outline the method of procedure before presenting the report of cases.

The solution used for injection consists of a 6 per cent. solution of neosalvarsan in distilled water. This solution is hypertonic and made of such a concentration that each minim must contain 3 mg. of the drug. The dosage injected is from 3 to 12 mg. — that is, from 1 to 4 drops of the solution, which is made up as follows:

An ampule containing 0.3 gm. of neosalvarsan is dissolved in 5 c.c. of freshly distilled water. If the ampule contains 0.6 gm., 10 c.c. of water are used. In both solutions, each drop will contain 3 mg. of the drug. The syringe employed for the injection is accurately graduated in drops. The patient is placed in a position for lumbar puncture, either sitting or lying, according to the choice of the operator. The puncture is then made with a needle, the end of which fits the graduated syringe. After a few drops of the spinal fluid have flowed out of the cannula, or a greater quantity if a diagnostic puncture is desired at this time, the syringe is fitted into the needle, and the fluid is allowed to run back into the syringe barrel,

1. Wile, U. J.: The Technic of the Intradural Injections of Neosalvarsan in Syphilis of the Nervous System, THE JOURNAL A. M. A., April 11, 1914, p. 1165.

thus mixing with the amount of the drug in the barrel. The mixed spinal fluid and drug are then gently forced into the canal, and slight suction is made on the syringe to withdraw a second amount of fluid, which washes out the needle. This is then reintroduced, the needle is quickly withdrawn and the patient placed in the Trendelenburg position, in which position he is allowed to remain for at least one hour.

During the past nine months, selected cases of syphilis of the nervous system have been treated in my clinic by this method. In all, twenty-five injections have been given to fifteen different patients. The classification of the cases treated is as follows: tabes dorsalis, 7; general paresis, 3; cerebrospinal syphilis, 3; taboparesis, 2.

Following are the case histories with their treatment and results:

REPORT OF CASES

Case 1.—F. W., a man aged 44, with tabes dorsalis, had contracted syphilis twenty-three years ago. Very little treatment had been given. Tabetic symptoms began twelve years ago with shooting pains in the limbs. For the past three years there had been unsteadiness of gait and bladder trouble. The most marked symptoms on examination were absence of deep reflexes; hyperesthesia of the skin of the abdomen; marked incoordination; marked Romberg; slight tremor; Argyll Robertson pupils. Sept. 24, 1913, spinal puncture showed slight but evident increase in pressure; the cells were not counted; albumin and globulin were increased, and the Wassermann was positive. On the same date, the first intradural injection of neosalvarsan, 1 mg., was given. For five days after injection, there was marked exacerbation of lightning pains and girdle sensation. This was relieved by an intravenous injection about two days later of 0.3 gm. of neosalvarsan. Oct. 7, 1913, the second intradural injection, 2 mg., of neosalvarsan was followed by exacerbation of girdle pains and lightning pains which were not so marked as those following the first injection. A note made, October 13, showed a marked improvement in station and decided improvement in general condition. October 17, the third intradural injection of neosalvarsan, 2 mg., was given. Half an hour after the injection there was extreme pain in legs and retention of urine. From this time on until December 5, the patient failed steadily. He developed paraplegia, loss of sphincter control and decubitus. December 5, patient died, and post mortem showed the following changes: old syphilis; taboparesis; fibroid heart; syphilitic aortitis; decubitus; perinephritis; purulent peritonitis; chronic cystitis; syphilitic orchitis. A careful study of the brain and cord by Prof. C. D. Camp showed the changes of tabes and recent degeneration in the posterior columns in the lumbar and thoracic regions. It was thought from the study of these tissues that this degeneration might have been due to the imbibition of toxic substances from the cerebrospinal fluid.

The striking features in this case are the accentuation of the lightning pains; the appearance of more pronounced bladder symptoms in a patient whose bladder was already affected, and the apparent improvement after the second injection, with the progression, however, of the disease after the third injection. Notwithstanding this progression, the spinal fluid became almost normal. A puncture, taken November 11, while the patient's condition was very bad, showed about 13 cells to the cubic millimeter and a negative Wassermann.

Case 2.—C. S., a man aged 32, with cerebrospinal syphilis, transferred from the department of medicine for severe headache and projectile vomiting, had contracted chancre three years ago; he had received treatment with pills and iodid for one year. Headaches began two months previous to admission together with vomiting, projectile in character. Wassermann in the blood, + + + +. Examination of the spinal fluid showed 700 cells to the cubic millimeter; fluid turbid; marked increase in albumin and globulin. Wassermann + + +. October 7, first intradural injection of neosalvarsan, 3 mg., was given. Following the injection, patient had a slight febrile reaction and very slight pains in the legs and head. The headache subsided, however, within a very few days and all vomiting ceased. October 11, patient was so far recovered as to be discharged. October 20, he returned much improved in general appearance and received a second intradural injection, 6 mg. This was followed by slight retention of urine which, however, lasted only a few days. From this time until his second diagnostic puncture, patient improved markedly in general health, had absolutely no headache, and ceased vomiting entirely. November 6, spinal puncture showed 253 cells to the cubic millimeter, albumin and globulin still positive, reaction much less marked, Wassermann reaction negative in the fluid. November 15, patient was discharged with instructions to continue his treatment in the form of inunctions. A letter from him, March 20, 1914, showed a gain in weight of 15 pounds, no headache, and no vomiting. Occasional numb sensations remained, however, in the legs.

In this case the striking features are the prompt disappearance of symptoms following the first injection, and the marked drop in cells from 700 to 253, and the absence of the positive Wassermann reaction in the fluid following the first injection.

Case 3.—C. H., a man aged 48, transferred from the department of neurology for treatment for taboparesis, was said to have contracted chancre on the finger ten years ago. Treatment had been inefficient. Patient has been a morphin fiend for some years. Examination revealed Argyll Robertson pupils; absence of deep reflexes; marked Romberg; slight hypertonia; ataxic gait; slight speech defect; slight difficulty in voiding urine; girdle sensation and lightning pains; cerebrospinal fluid, 20 cells to the cubic millimeter, increase in albumin and globulin, Wassermann positive. Wassermann in the blood was positive. November 17, the first intradural injection, 3 mg. of neosalvarsan, was followed by subjective improvement. Patient voided more freely and slept well. November 27, the second injection, 6 mg. of neosalvarsan, was followed by marked neuritic pains in the legs, uncontrollable. Puncture taken, November 11, showed 13 cells to the cubic millimeter, Wassermann + + + +, globulin and albumin positive. From this time until December 10, when the patient died, he developed a marked euphoria, retention of urine demanding catheterization, and complained of continuous pains in the abdomen. Post-mortem report by Professor Warthin showed old syphilis; paresis; bronchopneumonia; purulent pyelonephritis; pyelitis; cystitis, and general arteriosclerosis. An examination of the brain and cord by Prof. C. D. Camp showed a recent degeneration, and involvement of the posterior columns, suggesting imbibition of toxic substances from the cerebrospinal fluid. The striking features in this case were accentuation of the bladder symptoms and accentuation of the lightning and girdle pains following the second injection.

Case 4.—G. S., man aged 56, with tabes dorsalis, transferred from the department of ophthalmology for positive Wassermann, had contracted syphilis twenty-five years ago. No treatment had been received. Eyesight began to fail three months previous to entrance to hospital, and the patient became almost blind in a short time. The clinical symptoms were optic atrophy; chorioretinitis; Charcot joint; marked incoordination; absent deep reflexes, and Argyll Robertson pupils. Wassermann in the blood, + + + +. Spinal puncture showed 30 cells to the cubic millimeter, and marked increase in albumin and globulin. October 20, patient received his first intradural injection of 3 mg. of neosalvarsan. Injection was followed by no untoward symptoms. Patient said he felt better. Station was decidedly improved. Five days later, he showed markedly less incoordination. Patient was discharged, Oct. 25, 1913, markedly improved. He returned to the hospital Nov. 1, 1913, decidedly better; he felt brighter. Spinal fluid showed 13 cells to the cubic millimeter, albumin and globulin still increased but less,

Wassermann negative. Second injection, same date, 6 mg. of neosalvarsan, was followed by slight retention; otherwise patient felt well. Following this injection, however, patient developed a marked ataxia, station became worse and patient developed incontinence. He was discharged from the hospital, and a letter written Oct. 25, 1914, states that he has some difficulty in walking but otherwise feels well.

The striking features in this case were the marked improvement subjectively following the first injection and the marked objective improvement in the spinal, as evidenced by the drop from 30 to 13 cells, from a positive to a negative Wassermann, and from the decrease in the albumin and globulin content. Injection, however, of a larger dose evidently caused a setback in this case, from which the patient recovered somewhat.

CASE 5.—For this patient, Miss B., referred by Professor Barrett from the Psychopathic Hospital where she was under treatment for juvenile general paresis, there was no definite history obtainable. The clinical symptoms were Argyll Robertson pupils, marked speech defect, and general psychic disturbance. Wassermann in the blood was positive. Spinal fluid findings were all positive. This patient received only a single injection and then passed out of our hands. There was a marked increase in her psychic disturbance and no subjective or objective improvement following her treatment.

CASE 6.—V., a man with general paresis, referred by Professor Barrett from the Psychopathic Hospital, had symptoms, disorientation, memory defect, absent deep reflexes, inequality of pupils, marked Romberg and marked speech defect. This patient was injected, Oct. 26, 1913, with one injection of 3 mg. of neosalvarsan which was followed by a marked incontinence of urine and by a temporary intestinal atony. This patient also passed out of our hands and there is no further report of him.

CASE 7.—B., a man with advanced general paresis, transferred by Professor Barrett, had had over 300 paralytic attacks during the past three years. The clinical symptoms were absent deep reflexes, marked Romberg, marked speech defect and Argyll Robertson pupils. Wassermann in the blood, + + +. Cerebrospinal fluid showed 28 cells to the cubic millimeter, marked increase in albumin and globulin and + + + Wassermann. It was noted in this case that all of the symptoms had been increased by a previous intravenous injection of salvarsan and by the injection of salvarsanized serum which he had received in the psychiatric clinic. October 26, patient was injected with 3 mg. of neosalvarsan, and his subsequent history showed absolutely no change for the better or worse.

CASE 8.—E. D., a man aged 45, with tabes dorsalis and cerebrospinal syphilis, was transferred from the department of medicine where he had been treated for stomach trouble—vomiting of three years' duration—for which he had been operated on following a diagnosis of gastric ulcer. Infection had occurred probably eight years before, coincident with soft chancre. Three months of pill treatment had been received. Prominent symptoms were gastric crises; inequality of pupils; positive Wassermann in the blood; cerebrospinal fluid, 12 cells to the cubic millimeter, Wassermann + + + +, albumin and globulin positive. Patient received four intravenous injections of neosalvarsan with no improvement in his condition. Vomiting persisted and he was rapidly emaciating. Nov. 14, 1913, he received his first intradural injection. This was followed by improvement in general condition and gain in weight. Jan. 16, 1914, patient was discharged. He had vomited slightly once or twice since his first injection, but was decidedly better than before. Two weeks after his injection, patient began vomiting again, and a second injection was decided on Dec. 3, 1913, when he received 6 mg. of neosalvarsan. This was followed again by immediate cessation of vomiting. There was, however, still some gastric disturbance. Patient was discharged in much better condition. A letter received from him, March 19, stated that he had gained 20 pounds in weight, was able to eat three meals a day and did not vomit. Spinal puncture, taken Dec. 26, 1913, before his discharge, showed 11 cells, albumin and globulin positive but much less, Wassermann still + + + +.

The striking features in this case are the prompt disappearance of vomiting and pain following the first injection, their reappearance within a short time, and their prompt disappearance again under the second injection, with the marked gain in weight and the restoration of the patient to apparent normal condition. In this case, however, it is noteworthy that the character of the spinal fluid remained unchanged.

CASE 9.—T. L., a man aged 46, with cerebrospinal syphilis, referred from the department of neurology for treatment, had contracted syphilis eight years ago. No efficient treatment had been given. Headache and dizziness began about a year ago, with no improvement under treatment. Patient had been operated on for gall-stones two years ago. No stones were found. Two injections of neosalvarsan a year and a half ago had been followed by slight improvement. Headache, however, was increasing and constant, with extreme dizziness. Symptoms were headache; pain in back, legs and arms; marked Romberg; absent deep reflexes; dizziness; inequality of pupils, and right pupil sluggish to light. Wassermann in the blood was positive. Cerebrospinal fluid, 7 cells to the cubic millimeter, albumin, globulin and Wassermann positive. Patient received four intravenous injections of neosalvarsan without any improvement in symptoms. Intradural injection, Dec. 22, 1913, was followed by no untoward symptoms. There was marked subjective improvement. Jan. 12, 1914, second intravenous injection of neosalvarsan, 6 mg., was given. Spinal fluid taken at this time showed 14 cells, and only a trace of albumin and globulin. Wassermann was negative. Following the second injection, patient showed marked improvement subjectively. His headache practically disappeared and he was discharged from the hospital, Jan. 22, 1914, definitely improved in health. Since that time, however, nothing has been heard from him. The striking features in this case are the marked objective improvement in the spinal fluid findings except for the lymphocyte-count, which was not materially different, and the relief of subjective symptoms following the intradural injections, whereas these had been uninfluenced by intravenous injections of neosalvarsan.

CASE 10.—O. M., a man aged 30, with cerebrospinal syphilis or tabes dorsalis, denied syphilis but admitted exposure. Prominent symptoms were headache, pain in the epigastrium, inequality of pupils, sluggishness of right pupil, analgesia, sensory disturbances and absent Achilles reflex on one side, and low-grade chorioretinitis. Wassermann in the blood, + + + +. Spinal fluid showed 7 cells to the cubic millimeter, albumin and globulin positive, Wassermann + —. Pain in the stomach began three years before admission, associated with severe headache and some fever. Patient received four injections of neosalvarsan intravenously without any subjective improvement. Dizziness, headache, and pain in the stomach continued. Jan. 13, 1914, first intradural injection, 3 mg. of neosalvarsan, was followed by marked improvement in subjective symptoms. Girdle sensation and pain in stomach were markedly less. Patient was discharged, Jan. 24, 1914, much improved in general health, having gained 7 pounds in weight. He was referred back to his physician for mercurial treatment, and has not been heard from since.

The striking features in this case are the lack of improvement following intravenous injections and the prompt disappearance of subjective symptoms after a single intradural injection.

CASE 11.—T. W., a man, aged 37, with tabes dorsalis, had contracted syphilis ten years ago. Treatment with pills had been received. Onset of tabetic symptoms had been noted with the beginning of the Charcot knee about one year before admission. Prominent symptoms were Charcot joint of the left knee; Argyll Robertson pupils; absent deep reflexes; marked Romberg; and low-grade chorioretinitis. Wassermann in the blood was positive. Patient was given three injections of neosalvarsan intravenously and said that he felt decidedly better from them. Jan. 24, 1914, spinal

puncture showed 40 cells to the cubic millimeter, a marked increase in pressure, albumin and globulin positive, and Wassermann positive. Intradural injection of neosalvarsan, 4 mg., was followed by no untoward symptoms save an accentuation of lightning pains which, however, very soon subsided. Feb 5, 1914, spinal puncture showed 7 cells to the cubic millimeter, albumin and globulin only slightly increased and Wassermann negative in the spinal fluid. Second intradural injection, 6 mg. of neosalvarsan, was followed by absolutely no untoward symptoms but very marked improvement in all features. Station is steadier. March 25, 1914, spinal puncture showed 2 cells to the cubic millimeter, a slight increase in albumin and globulin and Wassermann reaction doubtful.

The striking features in this case are the prompt disappearance of the findings in the spinal fluid following the first injection, the slight increase of lightning pains followed by their diminution and the prompt improvement following the second injection. The patient was discharged from the hospital, March 31, 1914, and referred back to his own physician with instructions for continuation of treatment. He gained 4 pounds during his stay.

Case 12.—P. K., a man, aged 31, with cerebrospinal syphilis, entered the hospital for complete third-nerve palsy and extensive gummatous syphilids of the body. He had no treatment previous to outbreak of gummous lesions three years before. Third-nerve palsy on the left side came on suddenly three days before admission. Wassermann ++++. Prominent symptoms were third-nerve palsy; nodulo-ulcerative syphilid of the thigh; left-sided ptosis; iridoplegia; left-sided ataxic paraplegia and low-grade chorioretinitis. Cerebrospinal fluid, 48 cells to the cubic centimeter, Wassermann, albumin and globulin positive. Feb. 16, 1914, patient received his first intradural injection, 4 mg. of neosalvarsan, followed by slight radiating pains in the legs and slight difficulty in urination, lasting for only one day. There was marked improvement, cutaneous syphilids rapidly clearing up. Feb. 25, 1914, spinal fluid showed exactly the same changes as before. Second intradural injection, 6 mg. of neosalvarsan, was followed by no untoward symptoms. Patient felt perfectly well. March 9, 1914, cerebrospinal fluid showed 16 cells to the cubic millimeter, albumin and globulin much less, though still increased. Wassermann negative. March 16, 1914, the patient had entirely recovered from third-nerve palsy. At this time, however, he developed a more marked ataxic paraplegia and was forced to take to his bed. He improved slowly and was discharged from the hospital. Puncture taken shortly before his discharge showed 12 cells to the cubic millimeter and a negative Wassermann. He was referred back to his home physician, having gained about 5 pounds in weight. A letter from him of recent date reports gradual improvement from paraplegia.

The striking features in this case were the marked improvement in objective findings in the spinal fluid following the first intradural injection and the rapid clearing up of the oculomotor palsy and the advancing paraplegia. Objectively, the striking feature was the drop from 49 to 12 cells and from a positive to a negative Wassermann in the spinal fluid.

Case 13.—Mrs. A., aged 38, with tabes dorsalis, had contracted syphilis seventeen years previously; no treatment had been received. Onset of tabetic symptoms occurred four years ago. Clinical symptoms were Argyll Robertson pupils, slight ataxia, positive Romberg, absent deep reflexes, internal strabismus and lightning pains. Wassermann in the blood was positive. Spinal fluid showed 38 cells to the cubic millimeter, Wassermann, albumin and globulin positive. Injection, March 16, 1914, 3 mg. of neosalvarsan, was followed by absolutely no untoward symptoms and immediate cessation of lightning pains. Patient felt decidedly stronger; station was improved. Spinal puncture, April 1, showed 6 cells to the cubic millimeter, albumin and globulin still positive, but less, Wassermann + + +, gain in weight of about 10 pounds. Spinal puncture taken April 15, 1914, showed 11 cells to the cubic millimeter, albumin and globulin still increased, Wassermann still + + +. The patient was discharged, April 20, to continue antisyphilitic treatment in the form of inunctions and potassium iodid.

The features of note in this case are the prompt disappearance of lightning pains and the improvement in general condition following a single intradural injection of neosalvarsan. Objectively, there was a striking drop in the number of lymphocytes in the spinal fluid.

Case 14.—Mrs. L. Mc., aged 32, with tabes dorsalis, denied knowledge of a syphilitic infection. Onset of symptoms began three years ago with attacks of vomiting. Prominent symptoms were gastric crises and inequality of pupils—left did not react to light. Wassermann in the blood was negative. Spinal puncture showed cells; these were not counted, owing to contamination; albumin and globulin were markedly increased. Wassermann ++++. First intradural injection, March 23, 1914, 4 mg. of neosalvarsan, was followed by immediate cessation of vomiting. Patient became hungry and ate well. A few days later, however, she began to vomit again and left the hospital, March 27, 1914, and has not been heard from since.

In this case the striking feature was the immediate cessation of vomiting following the first intradural injection and a recurrence of the symptoms after a few days. A second injection could not be given in this case.

Case 15.—J. S., a man, aged 37, with tabes dorsalis, was transferred from the department of neurology for treatment. He contracted syphilis fifteen years ago. Liquid medicine had been taken for one month. Onset of tabetic symptoms took place one year ago with vomiting. Prominent symptoms were gastric crises and sluggish pupillary reaction. Wassermann in the blood, ++++. Cells of the spinal fluid were not counted because of contamination. Albumin and globulin were positive. April 2, 1914, cells were not counted, Wassermann, albumin and globulin positive. Patient had a slight nausea. First intradural injection, March 1, 1914, was followed by vomiting, pain in the hips and legs, and suppression of urine. Catheterization was found necessary. This patient has not done well since his injection. He developed retention, cystitis with fever and decubitus. Catheterization was found necessary twice daily. Patient is still in the hospital and his condition remains stationary. Puncture taken one week following the injection showed 4 cells to the cubic millimeter, albumin and globulin much less, Wassermann + + +. The features of note in this case are the objective improvement in the cord findings without any corresponding subjective improvement.

Of the fifteen patients thus treated, two are dead; seven cases are markedly improved, both subjectively and in the objective findings in the cerebrospinal fluid; three patients having general paresis were given only a single injection and showed no improvement, nor were they made any worse by the treatment; one patient showed an improvement after a single injection with a relapse of symptoms, and no subsequent treatment was given; and one patient was markedly improved with respect to the oculomotor palsy, but showed progression of the spinal feature of the disease in a progressive paraplegia.

The cases that have thus far been treated are too few to permit the drawing of any but tentative conclusions. It is apparent to me from my experience that in general, cases with cerebrospinal syphilis other than tabes or paresis have done decidedly better than those in which either one or both of those two conditions have been present. It is noteworthy that those cases of tabes have done especially well in which no bladder or rectal symptoms were present. It would seem, therefore, that cases in which such symptoms were present constitute contra-indications for the treatment as it is given at present.

The marked improvement in the objective findings in the spinal fluid following treatment, in practically all forms of syphilis thus treated, even in the absence of subjective improvement, lead one to hope that this form of treatment is along the right line for checking or, indeed, in some cases even curing central nervous involvement. I am led to believe that my earlier cases would have done better with injections of even smaller doses than those which were given. Subsequent injections will be given in small doses and diluted with a greater amount of the cerebrospinal fluid.

Cases to be thus treated should be carefully selected. For the present at least, this form of treatment should be restricted to those cases in which other forms of treatment have proved inefficient.

In all cases the danger of the treatment in its present unperfected state should be pointed out to the patient and his family, and the responsibility for its administration should be shared by them. It is to be hoped and expected that more careful study and selection of cases will prove the intradural injection of neosalvarsan a potent remedy in combating cases of cerebrospinal syphilis.

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HAY-FEVER

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PROPHYLAXIS AND CURE WITH POLLEN TOXIN

During the season of 1913 I treated nineteen cases of hay-fever with successful results in sixteen. Of three patients who were treated before the onset of symptoms, not one had an attack throughout the season; and of sixteen in whom treatment was begun after the onset, thirteen were cured. Relief of symptoms was very prompt, usually within an hour or two and seldom later than twenty-four hours.

The method used is essentially a modification of the active immunization suggested by Allen and others, with the addition of a bacterial vaccine in cases complicated with infection.

THE TOXIN

The toxin was prepared as follows: One gram of mixed pollen (250 mg. *Ambrosia artemisiaefolia*, 250 mg. *Ambrosia trifida*, and 500 mg. different varieties of *Solidago* found in this locality) was mixed with about 10 gm. of sterilized fine sea-sand in a sterile mortar; 100 c.c. of physiologic salt solution with 0.5 per cent. phenol (carbolic acid) was measured out and the pollen moistened with a portion of it. The mass was then ground for several hours, with the addition of portions of the salt solution, until the sand was reduced to an impalpable powder. The remainder of the salt solution was then added, the whole transferred to a sterile flask and allowed to stand at room temperature for twenty-four hours with frequent shaking. The fluid was then pipetted off, centrifuged and sealed in glass ampules, each containing 1 c.c. This constituted the stock solution and was stored in a cool, dark place.

DOSAGE AND ADMINISTRATION

For convenience, the unit suggested by previous workers was used. This unit is the quantity of toxin extracted from 1 microgram (0.000,001 gm.) of pollen. As prepared, each cubic centimeter of stock solution contained ten thousand units. From the stock solution two serial decimal dilutions were made containing one thousand and one hundred units to the cubic centimeter, respectively. By using a tuberculin syringe graduated in hundredths of a cubic centimeter it was possible to administer doses containing any desired number of units while the total volume of the dose never exceeded 1 c.c.

The site of injection was painted with tincture of iodin and the injection made subcutaneously in the usual manner. In no case was there any serious trouble at the site of injection.

The dosage in each case was determined entirely by the nature and extent of the reactions produced. Efforts to determine the proper dosage in advance by means of ophthalmic and cutaneous reactions were found to be unreliable. The interval between doses was from five to eight days at first, but this was reduced after a little experience to one or two days, depending on the time required for the reaction from the previous dose to subside.

TREATMENT AND REACTIONS

Three patients were given treatment beginning about a month before the time for the annual onset. All were adult men and had suffered annual attacks for eight, twenty and thirty-five years, respectively. The first received eight injections of from 25 to 1,000 units each; the second, six injections of from 25 to 700 units; the third, six injections of from 25 to 500 units. Doses were given at intervals of from five to eight days. Complete immunity resulted in each case.

In all true cases of hay-fever the administration of a proper dose of toxin is followed by a well-marked reaction. This begins in from half an hour to two hours and is characterized by an exaggeration of the usual symptoms of an attack; sneezing, lacrimation, itching of the eyes, cough, dyspnea in asthmatic subjects, and sometimes edema and urticaria. In the third case reported above, the third dose was increased from 100 to 300 units after an interval of seven days and was followed by a reaction which continued for about eighteen hours and caused the gravest alarm; there was a violent general urticaria, severe edema of the neck and throat, dyspnea and vertigo. The reaction terminated abruptly, the patient felt no ill effects from it, and consented to go on with the treatment. He had never been able to go near ragweed when flowering, but last season he handled it with impunity.

August 11 a patient came with a well-developed and rather severe case of three days' duration. For seven years he had suffered annual attacks of such severity as to compel a change of climate. The present attack had begun in the usual manner. I gave him 5 units; the reaction came on in half an hour and continued for two hours, followed by a sudden remission of all symptoms. I gave him eight injections of toxin at intervals of one and two days, the last being 1,000 units. He had no further trouble and continued at his work.

Fifteen others were treated after the onset of the annual attack; the number included both sexes and their ages ranged from 20 to 60 years. The initial dose varied from 5 to 50 units and the final dose from 100 to 1,000 units. The interval between doses was usually one day, sometimes two and seldom greater than two.

Of the sixteen patients treated after the onset of the annual attack thirteen were cured. The three not

benefited all began treatment more than a month after the onset of symptoms.

Vaccine as an Adjunct.—In all cases complicated by the presence of a bacterial infection injections of autogenous vaccine were given. Sometimes the vaccine was alternated with the toxin and in others it was given afterward. I consider this a very important element of the treatment which should never be neglected.

CONCLUSION

In spite of the conflicting theories concerning this form of treatment, the fact remains that the patients were cured—and "facts are stubborn things." Unfortunately the method here described is not suitable for use by the general practitioner. To use it successfully requires an intimate acquaintance with the various phenomena of immunity. I offer it in the hope that it may be taken up by others and so perfected that all physicians may use it to the end that humanity may be relieved of this most distressing of all non-fatal diseases.

THE ISOLATION OF SPIROCHAETA PALLIDA FROM THE BLOOD IN SYPHILIS

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The rabbit's testicle provides a favorable environment for the growth of *Spirochaeta pallida*. It has been extensively used for the study of experimental syphilis and for the demonstration of spirochetes in syphilitic material. Uhlenhuth and Mulzer[1] were the first to show the infectiousness of the blood in syphilis by the injection of rabbits; Nichols and Hough[2] and others have had positive results from the injection of cerebrospinal fluid; Graves[3] has reported spirochete-containing lesions with blood from tabetics and general paralytics.

In this study the blood from twenty-four untreated patients with early syphilis has been injected. It was withdrawn from a superficial vein of the forearm with aseptic precautions as in taking a blood-culture, and was defibrinated in a sterile test-tube. Two c.c. of the defibrinated blood were then slowly injected into the testicle. One animal was used for each case; in some cases one, in others both testicles were injected.

The latent interval after injection before lesions appeared varied from a little over one month in the earliest case to a little more than three months in the longest. In some the whole testicle was enlarged and quite hard; in others circumscribed nodules of cartilaginous hardness could be felt. The process sometimes showed marked thickening of both layers of the tunic. The nodules were usually situated in the upper pole of the gland, in or near the epididymis. In examining the testicle small lesions may be missed; the nodular feel of the normal epididymis and its apparent variation in size and consistency make the detection of these small areas of induration more difficult. In one of our animals the epididymis was noted as hard two months after the injection of a suspected blood, and the testicle was aspirated on two successive days with negative results. It was excised eight months after injection, and motile spirochetes were found in the dark field, although no gross lesions were evident.

As soon as lesions were palpable, the animal was etherized and the testicle excised. The cut surface of a nodule yielded a clear sticky fluid, which contained large numbers of spirochetes. In microscopic sections this mucinous exudate was found in a loose fibrous reticulum, and in tissue stained by Levaditi's method the organisms were present in these areas in the largest numbers. Uhlenhuth and Mulzer[4] and Noguchi[5] consider this exudate peculiar to syphilitic orchitis of rabbits.

THE PROTOCOLS OF THE POSITIVE CASES ARE AS FOLLOWS:

CASE 1.—Man, aged 35. Primary lesion of penis, two weeks' duration. Glands in groins. No secondaries. Wassermann weakly positive. Feb. 15, 1913, blood injected into both testes, Rabbit 14. Spirochetes were found in the dark field and in Levaditi sections.

CASE 2.—Man, aged 29. Primary lesion of penis, eighteen days' duration. Multiple glands in groins. Primary side of tongue twenty-three days. No eruption. Wassermann strongly positive. Feb. 29, 1913, blood injected into left testis, Rabbit 15. April 20, 1913, diffuse orchitis and periorchitis with spirochetes in dark field and in Levaditi sections.

CASE 3.—Man, aged 28. Primary lesions of penis, four weeks' duration. Multiple glands in groins. No skin eruption. Wassermann strongly positive. March 29, 1913, blood injected into both testes, Rabbit 29. June 15, 1913, left circumscribed nodule in epididymis with spirochetes in dark field and India ink smear; none found in Levaditi sections.

CASE 4.—Man, aged 22. Primary lesion of penis, two months' duration. General papular eruption. Wassermann strongly positive. Oct. 21, 1912, blood injected into both testes, Rabbit 4. Jan. 1, 1913, left diffuse orchitis, spirochetes in dark field and Levaditi sections.

CASE 5.—Woman, aged 18. Papules about mouth, forehead and scalp. Fading macular eruption over body. General glandular enlargement. Condylomata about anus. Wassermann strongly positive. Jan. 7, 1913, blood injected into left testis, Rabbit 7. Feb. 23, 1913, diffuse orchitis with periorchitis. No spirochetes found in dark field. In the Levaditi sections they were numerous.

CASE 6.—Man, aged 30. Primary lesion of penis with general roseola. Wassermann strongly positive. Feb. 20, 1913, blood injected into both testes, Rabbit 16. April 18, 1913, left diffuse orchitis with spirochetes in dark field and Levaditi sections. In the right testicle nodules could be felt. It was excised Sept. 23, 1913, and spirochetes were found in the dark field.

CASE 7.—Woman, aged 26, pregnant five months. General roseola. Wassermann strongly positive. Feb. 21, 1913, blood injected into left testis, Rabbit 19. April 22, 1913, circumscribed nodule in epididymis with spirochetes in dark fields and Levaditi sections.

CASE 8.—Woman, pregnant six months. Husband treated in clinic for syphilis the previous summer. Brilliant maculopapular eruption over body. Wassermann strongly positive. March 22, 1913, blood injected into both testes, Rabbit 26. May 18, 1913, left diffuse orchitis, spirochetes in dark field and Levaditi sections. The right contained palpable nodules and was excised July 8, with spirochetes in dark field.

CASE 9.—Man, aged 29. Primary lesion of penis, two months' duration. General glandular enlargement. Was-

1. Uhlenhuth and Mulzer: Berl. klin. Wchnschr., 1912, No. 4, p. 152; Centralbl. f. Bakteriol., Orig. Abt. 1, 1912, lxiv, 165.
2. Nichols, Henry J., and Hough, William H.: Demonstration of Spirochaeta pallida in the Cerebrospinal Fluid, THE JOURNAL A. M. A., Jan. 11, 1913, p. 108.
3. Graves, William W.: Can Rabbits Be Infected with Syphilis Directly from the Bloods of General Paretics? Observations on the Recognition of the Virus in the Later Periods of the Disease, THE JOURNAL A. M. A., Oct. 25, 1913, p. 1504.
4. Uhlenhuth and Mulzer: Arb. a. d. k. Gsndhtsamte, 1913, xliv, 307.
5. Noguchi: Jour. Exper. Med., 1912, xv, 202.

sermann weakly positive. April 7, 1913, blood injected into both testes, Rabbit 35. July 21, 1913, right circumscribed nodule in epididymis with spirochetes in dark field and in India ink smear. None found in Levaditi sections.

CASE 10.—Woman, aged 19. Ulceration on labia. General glandular enlargement. Roseola on body. Wassermann strongly positive. April 8, 1913, blood injected into right testis, Rabbit 36. Nov. 29, 1913, testis excised, showed no gross lesions. Spirochetes in dark field and India ink smear; none found in Levaditi sections.

The remaining 14 cases gave negative results. Four were in the primary stage and 10 showed secondary lesions. In the whole series there were 7 primary cases, the blood from 3 of which, or 41.5 per cent., gave positive results. The other 17 were in the secondary stage and gave 7 positive inoculations or 41.2 per cent.

This method of investigation offers a ready means for the demonstration of *Spirochaeta pallida* in the peripheral blood and furnishes convincing proof that syphilis is a chronic septicemia. It further shows that the blood-stream is invaded at an early period, before the skin manifestations are evident. By this means, without encountering the difficulties attending the isolation of the spirochete from contaminated surface lesions, we can obtain a strain of *Spirochaeta pallida* whose identity cannot be called in question.

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THE LEUKEMIAS UNDER BENZOL

A REPORT OF THREE CASES WITH A METABOLISM STUDY OF AN ACUTE LEUKEMIA *

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Selling,[1] in 1910, reported on the toxic effects of benzol as witnessed in two fatal and a number of mild cases. The fatal cases were clinically toxic purpuras with aplastic anemia. In these patients the red cells were reduced to 640,000 and 1,150,000, respectively, but the leukopenia was still more marked, reaching 480 cells per cubic millimeter in one case and 140 in the other. The reduction in granular cells was greater than that of the lymphocytes. At necropsy, the bone-marrow in each case was found to be aplastic.

In experiments on rabbits, Selling noted that benzol caused a marked reduction in the white cells, in one case to 20 cells per cubic millimeter. The red cells were usually not below 4,000,000, though the prolonged action of benzol affected them also. The bone-marrow of these rabbits was aplastic as regards leukocytes, but little altered as regards the erythrocytes. Selling found the action of commercial benzol and pure benzol (benzene, C_6H_6) identical and agrees with Santesson[2] that the essential toxic agent is benzene. He concludes that it is an intense poison for the white cells of the blood.

Barker[3] remarks that this action of benzol was clearly before the profession in 1910. No one, however, made practical application of it until von Koranyi[4] conceived the idea of using it in the treatment of leukemia. The reports in 1912 of von Koranyi and his assistant Kiralyfi[5] on their successful use of the drug attracted the attention of Billings[6] in this country, who later reported a short series of cases. It is likely that the majority of those who read of the very remarkable effects of benzol on the leukocytes resolved to employ it in their own cases of leukemia and we were able to find twenty-nine publications[7] of its use in this respect since the original article of von Koranyi. Nearly half of these appeared in the Vienna journals and but five in American journals. Most of the leukemias were of the chronic myeloid form, a few were of the chronic lymphatic variety and one, reported by Klein,[8] was a subacute myeloblastic leukemia. Klein used it in three acute myeloblastic leukemias, but states that his observations in these cases were not of sufficient duration or extent to warrant him reporting them. Observations, with few exceptions, agree that there is a marked and rapid reduction in leukocytes. The permanency of effects and the question of actual cure are doubtful matters which the future will settle.

The cases here reported are representative of the three principal varieties of leukemia and of the varying conditions under which they are met. The benzol used was Merck's medicinal; it was given in gelatin capsules in two cases and in olive-oil in the third. The dose was 3 or 4 gm. a day in the chronic cases and about 2 gm. in the acute form. None of the patients suffered subjectively from the drug.

CASE 1.—*Chronic myeloid leukemia* in a young man of 27. He was first seen in February, 1912, and at that time had a spleen extending just below and to the right of the umbilicus. There was little or no hepatic or glandular enlargement; no history of hemorrhages; and the patient had no complaint except of weakness. The blood-picture is seen in Table 1. It will be noted that in the first year, the Roentgen ray was employed with excellent effect on the blood-count. It will then be seen that benzol was given in two periods of about six and eight weeks, respectively, with almost negative results. The action of benzol on the leukocytes is supposed to continue after its withdrawal, but here failed

* From the Hering Research Laboratory, Hahnemann Medical College and Hospital, Philadelphia.
* Read, in part, before the Pathological Society of Philadelphia, Feb. 26, 1914.

1. Selling, L.: Johns Hopkins Hosp. Bull., 1910, xxi, 33.
2. Santesson: Skandin. Arch. f. Physiol., 1900, x, 7.
3. Barker and Gibbes: Bull. Johns Hopkins Hosp., 1913, xxiv, 363.
4. Von Koranyi, A.: Berl. klin. Wchnschr., 1912, xlix, 1357.
5. Kiralyfi, G.: Wien. klin. Wchnschr., 1912, xxv, 1311.
6. Billings, F.: Benzol in the Treatment of Leukemia, THE JOURNAL A. M. A., Feb. 15, 1913, p. 495.
7. These were the following:
Kiralyfi, G.: Wien. klin. Wchnschr., 1912, xxv, 1311.
Koranyi: Kongl. Gesellsch. d. Aerzte, 1912.
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Stein, B.: Wien. klin. Wchnschr., 1912, xxv, 1938.
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8. Klein, S.: Wien. klin. Wchnschr., 1913, xxvi, 357.

to cause a decided reduction. Since October, 1913, the patient's business required so much attention that he neglected his Roentgen-ray treatments and the white cell-count began to rise. Without increasing the Roentgen-ray applications, we began a third period of benzol. Two weeks later, the leukocyte-count was 29,000 cells lower and again two weeks later 34,000 cells lower, or almost half of that of the four weeks previous. The percentage of myelocytes was likewise reduced. It is of interest to note that while the previous or concurrent use of the Roentgen ray is supposed to further the favorable action of benzol, it did not

TABLE 1.—BLOOD-FINDINGS IN CASE 1, CHRONIC MYELOID LEUKEMIA

Date	White Cells	Percentage Myelocytes	Hb.	Red Cells	Remarks
2/16/12	314,000	33.4	27	2,980,000	Spleen below navel, began x-ray treatment.
3/15/12	242,000	....	37	.....	.....
3/30/12	157,000	....	50	.....	.....
10/ 5/12	110,000	....	70	.....	.....
4/ 2/13	99,000	....	75	.....	.....
4/24/13	32,600	18.0	75	.....	Began benzol, continued x-ray.
5/ 2/13	48,600	12.5	70	.....	.....
5/10/13	37,800	17.0	80	4,700,000	.....
5/17/13	27,600	15.0	90	4,840,000	.....
5/27/13	31,400	18.0	90	4,533,000	.....
6/ 6/13	26,000	14.5	95	4,780,000	Stopped benzol, continued x-ray.
6/14/13	23,800	12.0	80	4,650,000	.....
7/ 9/13	43,200	12.0	100	4,830,000	Began benzol.
7/23/13	53,200	15.5	97	.....	.....
8/ 7/13	52,800	....	..	.....	.....
9/ 1/13	.....	....	..	.....	Stopped benzol, continued x-ray.
9/27/13	37,800	....	65	.....	.....
10/24/13	95,600	14.5	..	.....	.....
12/ 8/13	111,200	....	55	.....	.....
1/ 6/14	100,000	14.6	58	3,930,000	.....
1/27/14	135,200	21.5	57	3,830,000	Began benzol, large mononuclears 17 per cent.
2/ 9/14	106,000	18.5	48	3,580,000	.....
2/23/14	72,400	10.5	55	3,730,000	Spleen same size.
3/ 9/14	43,600	12.0	53	3,830,000	Large mononuclears 25.5 per cent.
3/24/14	30,000	7.5	57	3,320,000	Large mononuclears 37 per cent.
3/28/14	.....	....	..	.....	Stopped benzol.
4/ 6/14	37,000	9.5	60	3,790,000	Two megacaryocytes.
4/21/14	33,000	9.5	55	4,060,000	One megacaryocyte 32.9 per cent.; large mononuclear.

so act in this case. On the contrary, the leukocidal effect of the drug was more in evidence in the third period when Roentgen-ray exposures were lessened.

A recent feature is the increase in the percentage of large mononuclear or hyaline cells. These formerly ran from 4 to 6 per cent., but in January, 1914, rose to 17 per cent. and since then have increased until they average over 30 per cent. Their large size, deep-staining nucleus and hyaline protoplasm make them a striking part of the blood-spread. Furthermore, many of the recorded basophils, which have also increased (in the last examination to 17.3 per cent.), we believe to be degeneration forms of these cells. This tendency to reversion from myelocytic to a myeloblastic type has been noted by Ehrlich,[9] Wilkinson[10] and others toward the end of the disease. It may here possibly indicate an effect of benzol on the bone-marrow. Finally, it is noteworthy that the spleen of this patient is just about the same size as on the first examination two years ago, and on no occasion has been found above or to the left of the navel. The patient is still under treatment.

CASE 2.—*Chronic lymphatic leukemia* in a man of 57. He was first seen, April 23, 1913, and had complained of symptoms referable to a leukemia for about nine months. He exhibited distinct glandular enlargements on both sides of the neck and axillae and less marked ones in both groins. There was a glandular swelling in the right axillae the size of a golf-ball. The spleen could just be felt at the rib edge on inspiration. The blood-findings are seen in Table 2. The patient had had no Roentgen-ray treatment and was put at once on benzol. It will be seen that after a preliminary rise, there was a decided fall of leukocytes reaching normal in six weeks, when the benzol was stopped. With this, there was a decided decrease in the size of the glands, notably of the one in the right axilla. The spleen, however, remained the same size and was still enlarged when examined Sept. 17, 1913. On that date, Roentgen-ray treatment was instituted, and three weeks later a second period of benzol was begun. In a month, the white count was down again and the benzol was stopped but the Roentgen ray continued. The effect on the red cells was at first a mild improvement and later a drop. Barker mentions that the blood-formula in lymphatic leukemia remains practically unchanged under benzol though the leukocytes are reduced to normal; but in this case there was a temporary improvement in the formula as well, the percentage of lymphocytes falling and the polynuclears rising from 1.8 to 53.5 per cent.

The patient now passed out of our hands and entered the University Hospital, where the count in January, 1914, was 12,200 leukocytes with 39 per cent. polynuclears and 55 per cent. lymphocytes. Later, he suffered cerebral thrombosis and returned home. We examined him again May 1, 1914, an interval of six months having elapsed without benzol or Roentgen-ray treatment. His leukocytes were only 16,000, but the percentage of lymphocytes had risen to 82.2 per cent. The glands were slightly larger and the spleen also had increased somewhat in size. The patient generally was in fair shape and able to come to the hospital for examination. He is still under observation.

CASE 3.—*Acute leukemia* in a woman of 42. After a succession of boils, the patient suffered a characteristic onset with an attack of tonsillitis, but this had subsided when she was admitted to the Hahnemann Hospital complaining of great weakness and smothering in the chest. Physical

TABLE 2.—BLOOD-FINDINGS IN CASE 2, CHRONIC LYMPHATIC LEUKEMIA

Date	White Cells	Percentage Small Lymphocytes	Hb.	Red Cells	Remarks
4/23/13	114,000	97.8	85	.....	Began benzol.
5/ 2/13	155,800	90.6	85	.....	.....
5/ 9/13	78,666	97.8	68	3,930,000	.....
5/16/13	42,800	93.6	85	4,900,000	Axillary glands reduced.
5/23/13	24,800	92.5	88	4,520,000	.....
6/ 3/13	8,200	64.0	85	3,750,000	Stopped benzol.
6/11/13	7,000	60.8	92	4,340,000	.....
6/24/13	8,200	52.0	90	4,010,000	Spleen same size.
7/ 8/13	10,400	64.0	95	4,380,000	One normoblast.
7/22/13	8,400	73.5	100	.....	.....
8/12/13	17,400	....	..	.....	.....
9/17/13	15,800	94.0	70	4,480,000	Started x-ray.
10/ 6/13	40,400	....	..	.....	Started benzol. Continued x-ray.
11/ 4/13	5,600	77.0	65	4,650,000	Stopped benzol. Continued x-ray.
11/13/13	7,400	46.5	68	3,500,000	.....
3/ 1/14	16,600	82.2	62	4,310,000	.....

examination gave no evidence of pathologic enlargement of the external or internal lymph-glands. The spleen could be felt several centimeters below the rib edge. Later, there was slight enlargement of the cervical glands, but not beyond the normal extreme. The patient was obviously anemic. There was ecchymosis on the left foot, a few petechiae on the abdomen and a small bleeding ulcer on the mucous membrane of the lower lip. The eye-grounds were free. The bleeding-time was decidedly increased. A blood-culture was negative. The case ran a febrile course quite similar to typhoid, and the patient died eighteen days after admission to the hospital. The necropsy findings were characteristic of an acute myeloblastic leukemia, and the

9. Ehrlich, quoted by Emerson: Bull. Johns Hopkins Hosp., 1907, xviii, 71.
10. Wilkinson, R.: Lancet, London, 1903, i, 1739.

marrow-spreads and section showed cells in all respects comparable with those found in the blood films. There was a supernumerary spleen about the size and weight of the normal organ, while the spleen proper weighed 750 gm. The liver was examined histologically for necroses, as described by Muhlmann[11] in a case of leukemia after the use of benzol, but the findings were negative in this respect.

The blood-findings are in Table 3. The white count was comparatively low on the first examination, but this is not uncommon. In two of Kelly's[12] four cases, the leukocytes were 9,000 and 17,000, respectively; in one of Emerson's[13]

TABLE 3.—BLOOD-FINDINGS IN CASE 3, ACUTE LEUKEMIA

Date	White Cells	Percentage Large Mononuclear	Hb.	Red Cells	Remarks
11/ 3/13	20,400	68	39	2,060,000	.....
11/ 4/13	22,000	..	39	.....	.....
11/ 5/13	25,600	..	..	.....	Began benzol.
11/ 6/13	19,600	80	28	2,062,000	.....
11/ 7/13	26,000	76	39	2,330,000	.....
11/ 8/13	20,600	71	29	1,880,000	.....
11/ 9/13	.....	..	..	.....	Gave streptococcus vaccine.
11/10/13	20,800	84	28	1,990,000	Gave streptococcus vaccine
11/11/13	26,800	83	28	2,000,000	Gave streptococcus vaccine. One normoblast.
11/12/13	20,000	76	25	1,200,000	.....
11/13/13	32,000	77	26	1,250,000	Stopped benzol.
11/14/13	26,000	86	18	1,180,000	One normoblast.
11/15/13	30,000	92	18	1,200,000	One normoblast.
11/16/13	96,000	89	20	.....	Three nucleated reds.

cases, the first count was 12,000; in McCulloch's[14] case, the first count was 15,000. In most of these cases, there was a subsequent rapid rise to high figures. Our patient showed but slight change until the day before her death, when the white cells numbered 96,000. Benzol was started on the third day and continued for eight days and may possibly have prevented the not unusual leukocytic rise; but it did not effect a reduction. The effect, if any, on the red cells was a steady drop. Streptococcus vaccine did not improve matters. As far as we know, this is the only recorded case of acute leukemia in which benzol was used.

Study of the blood-spreads from these leukemias suggests the office of benzol in effecting some of the changes seen. The poor staining qualities of some of the polynuclears and myelocytes are very common. We do not think the basophilic degeneration seen in the neutrophilic myelocyte is seen so frequently. And of special note in the myeloid leukemia are varying degrees of basophilic degeneration involving the recently appearing large non-granular mononuclears and confusing them with ordinary basophils. Further, eosinophils showing basic degeneration were occasionally observed. The low vitality of these abnormal cells may account for the degenerative changes, but the possibility of the accessory action of benzol is to be considered. The fragility of the leukocytes in leukemia, especially in the acute form, is well known. It is shown in the distorted and somewhat swollen forms seen in large numbers in the chronic lymphatic leukemia here reported. It was noted that these types increased decidedly after the administration of benzol. In cells of the acute leukemia, all degrees of granulation were seen in addition to the pure hyaline forms, indicating the difficulty of establishing a characteristic type of cell for this variety and suggesting that these are degenerative rather than physiologic granules.

11. Muhlmann, E.: Deutsch. med. Wchnschr., 1913, xxix, 2083.
12. Kelly, A. O. J.: Tr. Assn. Am. Phys., 1903, xviii, 481.
13. Emerson, C. P.: Bull. Johns Hopkins Hosp., 1907, xviii, 71.
14. McCulloch: Montreal Med. Jour., 1904, xxxiii, 580.

Experimental work to test the ability of benzol to cause basophilic and other leukocytic granulations might produce interesting results. Pseudopods in the large mononuclears of the acute leukemia were relatively numerous in a spread made the day after the eight days' treatment with benzol.

METABOLISM STUDIES

In the case of acute leukemia, metabolism studies were carried out by one of us (Pearson), over a period of five days. These were facilitated by the fact that the patient craved and took nothing but buttermilk for a week before her death. She was on this diet two days before the experiments were begun. The work was done only on the urine. The fecal losses may be estimated and allowed for, as the defect is probably not great with but one rather small movement a day. There were no losses by hemorrhage during or just preceding the period.

In Table 4 is shown the intake and output of nitrogen and phosphorus and the output of uric acid for five days.

The nitrogen in the buttermilk and the urine was estimated by the Kjeldahl-Gunning method. The phosphates of the milk were determined by the gravimetric method; those of the urine by titration with a standard uranium nitrate solution. Only one analysis was made of the buttermilk, as it was considered fairly uniform in composition. The uric acid was estimated by the Hopkins-Folin method.

It will be observed that there is a negative nitrogen balance of 6.64 gm. for the five days, and if we allow an additional gram a day for the feces, we enlarge the negative balance to 11.64 gm. This loss, however, is comparatively slight contrasted with the remarkable deficiencies in many reported cases of acute leukemia, in which a negative nitrogen balance of 20 gm. or more daily does not seem to be uncommon. It will be recalled that the white blood-count in this case was quite low most of the time, averaging from 20,000 to

TABLE 4.—METABOLISM OBSERVATIONS IN CASE 3, ACUTE LEUKEMIA

Date	Buttermilk Taken, c.c.	Nitrogen in Buttermilk gm.	Nitrogen in Urine, gm.	P_2O_5 in Buttermilk gm.	P_2O_5 in Urine, gm.	Uric Acid in Urine, gm.
11/10/13	887	4.548	.....	2.042	.....	.....
11/11/13	1,567	8.034	.....	3.608	.....	.....
11/12/13	2,661	13.653	7.89	6.127	0.814	0.265
11/13/13	2,306	11.824	16.13	5.310	1.269	0.938
11/14/13	2,129	10.915	12.20	4.902	1.725	0.669
11/15/13	1,952	10.005	15.74	4.493	2.173	0.947
11/16/13	1,538	7.883	8.96	3.540	1.461	3.276
Total five days (12 to 16 inc.).....	.....	54.280	60.92	24.372	7.442	6.095

30,000, and it would be interesting to know if the nitrogen and other losses roughly parallel the height of the leukocyte count. In Edsall's[15] case, in which he estimated the negative nitrogen balance for twenty-four hours as 27 gm., the leukocyte-count was 466,640.

On the other hand, the phosphorus pentoxid loss in the urine was 7.442 gm. for the five days, and if we allow 5 gm. as the fecal loss we have an output of 12.442 gm. of phosphorus pentoxid, which, against the intake of 24.372 gm., gives a positive balance of 11.93

15. Edsall, D. D.: Am. Jour. Med. Sc., 1905, xxx, 589.

gm. Considering the urinary output of phosphorus pentoxid alone, it is not far from the estimated normal. All this is contrary to the usual findings in this disease, though, as Chittenden[16] has pointed out, the organism is capable of storing up comparatively large quantities of phosphorus without close relation to simultaneous changes in nitrogen metabolism.

The uric acid figures, while not excessively high, are a little more consistent with the usual ones of acute leukemia, and seem to bear a fair relation to the leukocyte-count. It will be noted that on the last day when the leukocytes reached a maximum, the uric acid excretion jumped proportionately, amounting to 3.276 gm.

The nitrogen partition as regards urea, uric acid and ammonia is seen in Table 5.

TABLE 5.—NITROGEN PARTITION IN CASE 3, ACUTE LEUKEMIA

Date	Quantity Urine, c.c.	Specific Gravity	Nitrogen as Urea, gm.	Nitrogen as Uric Acid, gm.	Nitrogen as Ammonia, gm.	Per Cent. Nitrogen as Urea	Per Cent. Nitrogen as Ammonia
11/12	1,153	1.009	6.09	0.088	0.19	77.3	2.6
11/13	2,218	1.011	12.98	0.313	0.04	80.0	0.3
11/14	1,868	1.010	8.84	0.223	0.10	72.5	0.8
11/15	2,070	1.011	9.82	0.316	0.04	62.4	0.3
11/16	1,124	1.011	6.58	1.093	0.007	73.4	0.1

The urea determinations were done according to the method of Benedict and Gephart. The amount of nitrogen as ammonia was subtracted from the nitrogen determined by this method. The amount of nitrogen as ammonia was determined as directed by Schlössing. The nitrogen as uric acid was computed from the uric acid totals by the molecular relationships. The most marked feature seems to be the reduction in the ammonia.

It is difficult to say whether or not the benzol administered was a factor in the results obtained. It was given for a week preceding the metabolism studies and stopped on the second day after they were begun. No striking changes followed its removal. Sohn[17] studied the effects of benzol on metabolism in three non-leukemic cases and one of myeloid leukemia. These cases were put on a purin-free diet for two or three days; then given benzol for three to five days; and this was followed by a short third stage with the patient off benzol. Metabolism studies were carried out through the three stages. Sohn found an increase in the neutral sulphur and a change in the relation of the neutral sulphur to the sulphates; a reduction in the urea nitrogen in relation to the total nitrogen, and an increase in the ammonia. It will be noted that in our case the output of ammonia was decreased.

SUMMARY

1. In a case of chronic myeloid leukemia under benzol, treated previously and concurrently with Roentgen rays, the leukocyte-count remains relatively low though the formula is changed in favor of large mononuclears. The spleen remains the same size, but the patient generally is improved. The patient was under observation two years.

2. In a case of chronic lymphatic leukemia, benzol, without Roentgen assistance, restored the white count to normal. Later, Roentgen rays were used for a short period. The patient has now been without benzol or Roentgen ray for six months, yet the leukocyte-count remains low and almost within normal limits. The formula, however, has returned to a high percentage of lymphocytes. The spleen did not diminish in size and is now further enlarged. The patient was under observation one year.

3. In a case of acute leukemia, benzol seemed to have had no effect one way or the other on the blood or the size of the spleen. The necropsy findings were typical of acute leukemia; there were no liver necroses or damaging effects of benzol apparent. Metabolism studies did not reveal any marked losses.

124 South Sixteenth Street—209 North Fiftieth Street.

16. Chittenden, R. H., and Mendel, L. B.: Osler's Modern Medicine, Ed. 1, i, 650.
17. Sohn, L.: Wien. klin. Wchnschr., 1913, xxvi, 573.

THE VALUE OF THE DETERMINATION OF THE CHOLESTERIN CONTENT OF THE BLOOD IN THE DIAGNOSIS OF CHOLELITHIASIS

PRELIMINARY REPORT *

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The recent investigations of Aschoff and Bacmeister[1] have shown that gall-stones are to be classified, according to their composition, as follows:

1. Pure cholesterin stones.
2. Stratified cholesterin-calcium stones.
3. Cholesterin-pigment-calcium stones, which are most frequently found.
4. Composite stones, made up of cholesterin and a mantle of cholesterin and calcium.
5. Bilirubin-calcium stones, which are seldom found in the gall-bladder, but usually in the bile-passages of the liver itself.
6. Calcium carbonate stones, which are very seldom found.

That cholesterin plays a rôle, if not the most important rôle in the formation of gall-stones, is therefore evident. On the assumption that an excessive accumulation of cholesterin in the blood — a hypercholesterinemia — is the fundamental and primary etiologic factor in cholelithiasis, I have made a number of examinations which seem to verify that assumption. If my assumption is correct, we come far from curing a patient with gall-stones by the mere operative removal of the offending stones; for the primary cause—the hypercholesterinemia—persists (how long, I do not as yet know) after the operation. It is not my purpose at this time to go into the treatment of gall-stones either before or after operation. A great deal has been written on the subject, but only recently have we come to appreciate that in order to treat gall-stones intelligently and correctly, we must keep our eyes on cholesterin. I merely wish to report the results of several examinations I have been making.

* Read in part, before the Clinical Society of the German Hospital, New York, May 8, 1914.
1. Aschoff and Bacmeister: Die Cholelithiasis, Jena, 1909.

In making my quantitative cholesterin determinations, I proceeded as outlined in a previous paper.[2] This method of Weston and Kent,[3] with the colorimetric estimation of Grigaut,[4] I have employed a great many times, and continue to find it most satisfactory.

The proper interpretation of the cholesterinemia in any individual case is dependent on the presence or absence of such clinical factors as influence the cholesterinemia. Fever reduces the amount of cholesterin in the blood; nephritis, progressive arteriosclerosis and jaundice increase the amount of cholesterin in the blood.

The average normal amount of cholesterin in human blood-serum is 1.48 gm. per thousand c.c. serum. The recorded figures will be in terms of grams of cholesterin per thousand c.c. serum.

CASE 1.—Man, adult. Urine negative. No fever. No jaundice. Wassermann negative. Signs and symptoms referable to the gall-bladder. Cholesterin = 1.30. Operation showed intestinal adhesions.

CASE 2.—Man. No jaundice. No fever. Urine negative. Clinically either duodenal ulcer or cholelithiasis. Cholesterin = 1.70. Operation showed an ulcer.

CASE 3.—Man. No fever. Slight arteriosclerosis. Urine showed mild nephritis with albumin and hyaline casts. No jaundice. Clinically duodenal ulcer. Cholesterin = 2.30. Operation showed an ulcer. In this case the sclerosis and nephritis explain the moderate hypercholesterinemia.

CASE 4.—Man, aged 53. Temperature 100 F. Urine negative. Slight jaundice. Clinically, cholecystitis or gumma of liver. Wassermann negative. Cholesterin = 1.64. Operation showed inoperable carcinoma of stomach with liver metastases.

CASE 5.—Girl, aged 17. Temperature 99.4 F. No jaundice. White blood-cells, 17,800. Polymorphonuclears, 74 per cent. Urine negative. Clinically, high appendicitis or cholecystitis. The Roentgen-ray report was positive for gall-stones. Cholesterin = 1.28. Operation showed appendicitis. Gall-bladder free.

CASE 6.—Woman, aged 24. No fever. Urine negative. No jaundice. Wassermann negative. Clinically, duodenal ulcer. Cholesterin = 5.20. Operation showed gall-stones.

CASE 7.—Woman, aged 42. No fever. Urine negative. Often jaundiced in past, but not at present. Stomach analysis negative for ulcer. History of gall-stone colic. Cholesterin = 2.83. Operation showed gall-stones.

CASE 8.—Woman, aged 46. No fever. Urine negative. Moderate jaundice. No sclerosis. Clinically, undoubted gall-stones. Cholesterin = 3.26. Refused operation.

CASE 9.—Woman, aged 37. White blood-cells, 17,200. Polymorphonuclears, 88 per cent. No jaundice. No fever. Urine negative. Symptoms referable to gall-bladder. Cholesterin = 3.14. Under treatment, condition cleared up and diagnosis of catarrhal cholecystitis was made.

CASE 10.—Man, aged 45. Wassermann negative. No fever. Urine negative. No jaundice. Clinically, cholecystitis or tumor of liver. Cholesterin = 3.32. Operation showed cholecystitis and gall-stones.

CASE 11.—Man, aged 47. No fever. Urine negative. Wassermann negative. Slight conjunctival icterus. Symptoms referable to gall-bladder, but no definite diagnosis made before operation. Cholesterin = 5.55. Operation showed chronic catarrhal cholecystitis with gall-stones.

CASE 12.—Woman, aged 64. No jaundice. No fever. Urine negative. Tumor mass in right hypochondrium. Symptoms referable to stomach. Cholesterin = 5.57. Operation showed cholecystitis and gall-stones.

CASE 13.—Young woman. No fever. Urine negative. No jaundice. Clinically, cholelithiasis. Cholesterin = 9.49. Operation showed gall-stones.

CASE 14.—Woman. Temperature, 101.6 F. White blood-cells, 23,200. Polymorphonuclears, 88 per cent. Urine negative. No jaundice. Tumor in right hypochondrium. Clinically, either a cholecystitis or high appendicitis abscess. Cholesterin = 0.675. Operation showed chronic ulcerative cholecystitis with stone in cystic duct.

In this case, the comparatively high fever explained the hypocholesterinemia to me, but the surgeons refused to be convinced so easily. Twenty-two days after operation (at which time a cholecystectomy had been performed), I again examined the blood of this patient. She was free from fever. At that time, I obtained the figure of 4.55 for the cholesterin. This result led me to believe that the hypercholesterinemia of cholelithiasis persists after operation, and the following cases bear out that belief.

CASE 15.—Woman, aged 30. Temperature, 101.6 F. Urine negative. No jaundice. Three days after cholecystectomy for subacute ulcerative cholecystitis and gall-stones, cholesterin = 4.77.

CASE 16.—Woman. No jaundice. No fever. Urine negative. Four days after cholecystectomy for gall-stones, cholesterin = 2.13.

CASE 17.—Woman, aged 65. No jaundice. Urine negative. Temperature, 101.6 F. Diagnosis of possible carcinoma of gall-bladder had been made. Five days after cholecystectomy for chronic suppurative cholecystitis, cholesterin = 2.10.

CASE 18.—Woman, aged 19. Temperature, 99.6 F. Urine negative. No jaundice. Five days after cholecystectomy for chronic cholecystitis with stones, cholesterin = 3.77.

CASE 19.—Woman, aged 47. Temperature, 101 F. Urine negative. No jaundice. Six days after cholecystectomy (bile draining from wound), for chronic ulcerative cholecystitis with stones, cholesterin = 3.36.

CASE 20.—Woman, aged 57. No fever. Urine negative. No jaundice. Nineteen days after cholecystectomy for gall-stones, cholesterin = 3.96.

CASE 21.—Young woman. No fever. Urine negative. Slight jaundice. Three weeks after cholecystectomy (gall-bladder draining bile) for gall-stones, cholesterin = 1.98.

In reporting these cases, I have presented only the relevant features of each, purposely omitting details.

SUMMARY

1. Almost all gall-stones are formed largely, if not entirely, of cholesterin.

2. A hypercholesterinemia seems to be the fundamental and primary etiologic factor in the formation of gall-stones, and this hypercholesterinemia is easily determined.

3. In cases of cholelithiasis without fever, a hypercholesterinemia is invariably found.

4. Conditions simulating cholelithiasis can be differentiated therefrom by a cholesterin-serum determination. Particularly does this apply in differentiating ulcus duodeni from cholelithiasis.

5. The hypercholesterinemia of cholelithiasis persists for a considerable length of time after the operative removal of the stones.

6. (With reservation), operation without removal of the bladder does not free the patient from the probability of subsequent stone formation.

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2. Henes: Untersuchungen über den Cholesteringehalt des menschlichen Blutes bei inneren Krankheiten, Deutsch. Arch. f. klin. Med., 1913, iii, 122.
3. Weston and Kent: Jour. Med. Research, July, 1912.
4. Grigaut: Compt. rend. Soc. de biol., May 14, 1910.

The Burden of Ill Health.—It is a truism that the efficiency of the social unit is conditioned more by his physical status than by any other one factor. That the inefficiency due to ill health, however, constitutes a burden to be borne by the whole of society rather than the individual is a concept which has been fully recognized only of recent years.—J. W. Schereschewsky, *Public Health Rep.*

DYSTROPHIA ADIPOSOGENITALIS (OF FROEHLICH)

WITH CLINICAL REPORTS OF TWO CASES

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Dystrophia adiposogenitalis was first described in 1901 by Fröhlich, who asserted that the abnormality was due to diminished function of the pituitary gland. Very few cases had been met in literature until the publication of Harvey Cushing's exhaustive studies, which have thrown considerable light on our knowledge of the function of this gland, especially in its diseased stages. Since then the number of reported cases has increased immensely, and many observers have added a great deal to the studies of this phenomenon.

Cushing[1] expressed the hope that many cases of changed hypophyseal secretion would be reported in literature to enable us to get a fair understanding of the different types and subdivide them accordingly. This of course may give a better understanding of the therapy. As stated before, his hopes were fulfilled. Many cases have been reported by competent observers and many facts of value have been added to the former findings. In the *Proceedings of the Royal Society of Medicine of 1912-1913*, in the Neurological and Ophthalmological Section, we find six cases presented and discussed freely by most of the members. I am taking the opportunity to add two cases of interest that came under my observation.

The general symptoms of this disease are so characteristic that most of the cases reported were by internists and neurologic men, who are usually consulted for general complaints. The bony changes found in these patients have not attracted the attention of these physicians, and thus very little is mentioned in their studies concerning the bony findings. It is really the task of the orthopedist to observe and to report osseous changes, but unfortunately very few cases come under his observation, as the patients usually remain under the supervision of the internist. We find, therefore, scanty mention of the subject in the orthopedic literature. If more cases were seen by the orthopedists, more studies would have been undertaken and another field would have been conquered by them. I studied my cases from an orthopedic point of view, and thus have not taken up many careful laboratory and experimental observations.

I shall first make a brief review of the general symptoms of this disease.

DEFINITION AND SYMPTOMS

The disease is characterized by a peculiar adiposity with a feminine type of distribution when occurring in males, that is, the fat over the hips, pubis and pectorals is markedly increased. The adiposity is general—not localized as in lipomas. There is aplasia of the genitals. The male genital organs are markedly diminished. Hypotrichosis (scanty growth of hair) is marked, so that there is no beard and pubic or axillary hair. The hair on the scalp is abundant. The voice remains juvenile. In women there is amenorrhea, while in men there is anaphrodisia. The skin is very smooth, transparent and notably free from moisture, almost like that of a child. The body temperature is subnormal. There is a marked tolerance for carbohydrate with polyuria (diabetes insipidus?). There are some psychical disturbances as irritability and mental dulness. Many cases of epilepsy have been reported. Skeletal changes are marked only in cases in which this process started before full stature was attained. (To this Lorain applied the term "infantilism.") The patients have a feminine type of skeleton with broad pelves with a certain degree of genu valgum. Tapering fingers and toes are present. The roentgenograms of the terminal phalanges show the tapering. The long bones show the persistent epiphyseal lines. "There is an epiphyseal thickening and a tendency to delayed ossification" (Goetch). Luger reports mandibular prognathism, some enlargement of the extremities and an increase in size of the skull. Many patients are considerably below normal stature.

If the condition starts after adolescence, the most characteristic symptoms are adiposity, amenorrhea or impotence, excessive thirst and polyuria. The secondary sexual characteristics which have developed before the deficient secretion began may retrogress. The cause of these phenomena is a diminished secretion of the pituitary gland, that is, hypopituitarism. The diminished secretion is caused by tumors pressing on the gland, mainly on the posterior lobe. The gland itself may be diseased, having angiosarcoma or carcinoma or cyst formation. It may be of note to mention the conclusions of Cushing in regard to the function of the different lobes of the gland. The anterior lobe influences the general growth of the body, particularly the skeleton, while the posterior lobe, including the pars intermedia, promotes the contractibility and increases the tone of plain muscular tissue generally as well as of the heart, and excites the activity of certain glands, namely, the kidney and mammary glands, and influences carbohydrate metabolism. On removal of the compressing tumor, many of the symptoms disappeared. The fat was diminished and the sexual functions were reawakened. Cushing was able to produce hypopituitarism experimentally. By removing a part of the gland, the animal became fat, lost the sexual activity and suffered from polyuria.

As there is a distinct interrelation between this ductless gland and the other members of the group, we find, in the group of diseases under discussion, symptoms of deficient secretion of the thyroid, adrenals (as shown by the pigmentation of the skin, asthenia and lower blood-pressure), parathyroids (as shown by the disturbance in calcium metabolism), and as mentioned before, sexual glands. Peritz offers the following hypothesis as explaining the peculiarities of the interrelation between the function of the hypophysis and the sexual glands. There is a chemical antagonism between the anterior and posterior lobes (gas metabolism and sugar). The posterior lobe and the sexual glands contain a secretion which is mutually stimulative. By atrophy of either one, the other one is injured and lack of balance arises between the parts of the hypophysis, so that in many of these patients we find symptoms indicating diminished secretion of one lobe and increased secretion of the other.

1. Cushing, Harvey: The Pituitary Body and Its Disorders, Philadelphia: J. B. Lippincott Company, 1912.

Peritz' theory can easily be supported by the observations of Newrath that "eunuchs owing to castration are very tall and present gigantic symptoms." The absence of the testicles probably causes an atrophy of the posterior lobe with the loss of control over the secretion of the anterior lobe, so that the oversecretion of the latter lobe causes an increase in skeletal growth.

The bony changes in dystrophia adiposogenitalis are due mainly to the lack of secretion of the anterior lobe, as that lobe influences the growth of the osseous system. In many cases absence or diminution in size only of single bones is found. Ascali and Legnani, in their records of experimental hypophysectomies, mention the occurrence not only of undergrowth of bone, but also of spontaneous fractures. This also explains the occurrence of coxa vara in these cases. Turney has reported a spontaneous fracture of the sternum between the manubrium and gladiolus.

To illustrate more vividly the influence of the pituitary on growth, we may just consider the cases of hyperpituitarism, or those due to an oversecretion of the gland. Under such condition, gigantism is produced if the oversecretion dates from childhood without interruption. If the oversecretion dates from adolescence, or if gigantism, for some reason or other, has been arrested, acromegaly is the result.

Another disease of interest, which may be mentioned in connection with the discussion on pituitary, is achondroplasia. Achondroplasia, or stunted growth, in which all the long bones are seriously hindered in their growth, is held to be due to a marked deficiency of the pituitary, probably following an early ossification of the base of the skull. Jansen, in his monograph on achondroplasia, advanced the theory that achondroplasia is caused by amniotic bands pressing on the centers of the epiphyses, and thus attributes achondroplasia entirely to intrauterine pressure. He admits, however, that the deficiency of the pituitary may act as a contributory factor.

The skull changes in hypopituitarism are an enlargement of the sella, a thinning of the floor and a thinning and absorption of the dorsum and of the posterior clinoid processes. In intrasellar tumor, there is at first an enlargement of the sella, with increasing thinning of its floor and of the dorsum sellae; this is followed by absorption of the posterior clinoid processes and dorsum sellae. In the other types of tumor, there is at first absorption of the clinoid processes and of the dorsum sellae.[2]

The roentgenograms of the long bones show the delayed union of the epiphysis. The terminal phalanges are tapering.

Arthritis may follow the disturbance of any of the ductless glands as the pituitary, thyroid, thymus, ovary, testicle, parathyroid or pineal gland.

The treatment of these conditions consists mainly of operative methods if the pressing agent can be ascertained. The administration by mouth of extract of the pituitary, especially of the anterior lobe, is used as a routine treatment with some fair results. The other ductless glands should also be administered in conjunction with this gland.

2. In some cases there is a history of trauma at birth or later, when the base is probably injured.

REPORT OF CASES

CASE 1. *History.*—H. C., Hebrew, born in United States of Russian descent, clerk, aged 18, when first observed by me (in April, 1912), was referred by Dr. Isidore Abrahamson, to whom I am greatly indebted for the neurologic findings. Patient consulted us on account of inability to use his left hip, severe pain on walking and limping. Parents are alive and well. Patient has three normal brothers. There is no history of consanguinity.

Patient is the second child. Birth was normal. He walked at the age of 1 year, began to talk early, and was fairly bright as a child, according to the mother's statement. Patient was always surprised that his genitals were smaller than those of other boys of his age. He had diphtheria and scarlet fever when a child. There was no history of trauma. Adolescence was imperfect; childlike tendencies have persisted. Voice remained distinctly juvenile. At present it is more feminine than masculine. He has never shown any sexual instincts. For the last four years patient became very fat.

Present Illness.—This dates back nine months, when patient began to feel pain in the left hip, especially when rising from a chair. (He gives a vague report of having fallen about a month or two previous to the commencement of the pain and thinks he hurt himself on the left side.) The pain was radiating to the thigh and was boring in character. Patient had no pain in the knee at any time and no nocturnal pain. In a few weeks he noticed that he could not walk long distances without getting tired and could not bear weight on that foot for any reasonable length of time, even one hour; gradually he began to walk with a marked limp to the left. There were no headaches or disturbance of vision, but marked polyuria.

Fig. 1 (Case 1, taken April 16, 1912. Both hips).—*A*, the right one, which is normal, but shows the persistent epiphyseal line of the great trochanter (*l*). *B*, the left hip (diseased), showing coxa vara. It is bent at the middle of the neck, which gives one the impression of a fracture (*f*).

General Characteristics.—Patient is an overnourished, boyish-looking young man of full stature, height 5 feet 9 inches. There is no hair on face, pubis or axilla, while hair on the scalp is abundant. There is an excess of adipose tissue which is general but shows mainly a feminine distribution, being marked over the hips, pubis and pectorals. The weight was 165 pounds. The body has the configuration of a woman. Eyes and cranium are normal, and thyroid is apparently normal. Some bow kyphosis is beginning to be formed. Lordosis is increased. Abdomen is prominent. Fingers are normal except that slight hyperextension of all fingers is possible. Skin of upper extremities is very soft and smooth as that of a woman. The patient walks with a marked limp to the left side, and cannot flex the thigh on the abdomen. The motion of the adductors and outward rotators is also markedly impaired. When the thigh is flexed on the abdomen, the patient complains of severe pain in the hip. There is marked muscular spasm in left hip. The greater trochanter is palpable above Roser-Nélaton's line. The patient has a marked left genu valgum (inward bending of the knee or knock-knee). When the internal condyles of the femurs approach, the internal malleoli are separated about 2½ inches.

Measurements.[3]—R. A., 36¼ inches; L. A., 35 inches; R. U., 37¼ inches; L. U., 36 inches; R. T., 16½ inches; L. T., 16¼ inches; R. K., 21 inches; L. K., 20 inches; R. C., 13 inches; L. C., 12½ inches. Thus there is a shortening of an inch and a quarter and muscular atrophy. The measurements around the waist are 35½ inches on expiration and 36½ inches on inspiration. The circumference around the umbilicus is 37½ inches. There is a double talipes valgus (flat-foot). The toes are tapering. The penis is very small, almost as that of a child 6 months old. The scrotum is as small as that of a child 1 or 2 weeks old. Testicles are very small and extremely sensitive. Roentgenogram (Fig. 1) shows a marked coxa vara. The epiphyseal lines are ununited. The sella turcica is apparently normal. The urine is normal except that patient has marked polyuria. Though not exactly dull or stupid, the patient does not possess enough intelligence for his age, showing some infantile characteristics, as, for instance, crying in the waiting-room of the physician just because he had to wait for an hour to be treated.

Course and Treatment.—The patient was placed on pituitary extract, 0.12 gm. three times a day, and the dose slowly increased till the patient was getting daily 1.4 gm. and calcium glycerophosphate, 0.3 gm. three times a day. The weight was taken off the lower extremity by putting the patient on a brace, and massage to the defective muscles was ordered. The pain and the discomfort of the limb diminished so that the patient could walk long distances without getting fatigued. Pain disappeared entirely after three months. He retained a slight limp, however, but has learned to rotate the pelvis so that the limp became unnoticeable. His infantile characteristics began to show some improvement. The fat was diminished. The patient was so contented, however, with the relief of the pain and the discomfort of the limb, that he discontinued the pituitary extract after six months. He reported quite frequently to me that the hip caused him no trouble whatever and that he was able to pursue his occupation. His adiposity has increased after the stopping of the pituitary extract.

Fig. 2.—Case 2, showing the wide shoulders and the large crease in the middle of the spine with two smaller above that at each side. Note the absence of fat over the buttocks. The short thumbs are clearly shown.

This patient shows all the signs and symptoms of hypopituitarism dating from birth (infantilism of the Lorain type). There is probably a deficient secretion of the posterior lobe and the sexual glands, while the anterior lobe may produce hypersecretion or, according to Peritz, only normal secretion, but without the control of the posterior lobe. The coxa vara is probably due to a spontaneous fracture or bending of the neck of the femur because of diminished calcium metabolism. The trauma was the result rather than the cause of the fracture; hence the comparative mildness of pain.

Case 2. *History.*—D. H., Hebrew, born in the United States of Russian parents, single, aged 25 when first observed by me, in 1911, fur operator by trade, was admitted to the Montefiore Hospital complaining of pain and weakness in the back and marked deformity.

Parents are alive and well; there is no history of consanguinity. The patient is the first child, of normal birth; he began to walk at the age of 3½ and began to talk at a very late age. He was never bright and could not keep pace with the other boys at school. Hygienic surroundings were very poor. The patient had some children's diseases but does not remember the exact nature of these. There was no history of trauma. He was always taller and fatter than the average child of his age. At 13 he began to develop marked lordosis and broad shoulders so that the small children always used to laugh at him, saying: "Look how funny he walks." They were really the first ones to observe his abnormality.

Present Illness.—This dates back two years when patient began to feel frequent pains and weakness in the back. Pain was extending from the middorsal region to the hips. Patient was relieved in the sitting posture. Pain and weakness increased so that he had to give up his occupation. Finally he could not walk without supporting his spine. There were no cardiac, pulmonary or genito-urinary symptoms. Patient never had any sexual desire. There was excessive sweat over the back. He complained of lack of memory.

Medical Examination.—Patient is a very stout, even obese man, with marked broad shoulders, height 5 feet 8 inches. Hair on face, pubis and axilla is very scanty. Facial expression is rather idiotic with protrusion of upper lip. He has excess of adipose tissue which is general, showing mainly a feminine distribution, being marked over the hips, pubis and pectorals, but diminished over buttocks and thigh. Spinal motion is free. The torso is shortened. Measurements: Circumference around nipple line, on expiration, 36¼ inches, on inspiration, 37½ inches. Waist, at line of crease, 36 inches; at umbilicus, 41 inches. There is marked bowing of torso anteriorly. There are a deep furrow across the back 1 inch in depth and two smaller ones above. These creases disappear entirely when patient bends forward and keeps body at right angle with the extremities, showing that the entire trouble is in the adipose tissue and not in the spine (Figs. 2 and 3). The lordosis entirely disappears when patient sits down. The spinous processes of the sixth and seventh cervical vertebrae are prominent. Eyes are normal. Ear-lobes protrude too much outward. The thumbs are markedly shortened; they extend only half an inch beyond distal end of the metacarpal bones of the index-fingers. The terminal phalanges of thumbs are broad. Middle finger of both hands is deviated outward. Patient has a waddling gait. The big toes are shortened considerably. Thighs are particularly thin, as also are the buttocks. The scrotum is small. Testicles are undescended but can be pushed down and are found to be very small. Voice is more feminine than masculine. Thyroid gland is apparently normal. The patient is markedly idiotic, the memory very deficient. Clinical Findings: Urine is normal. Blood: Hemoglobin, 80 per cent., red blood-cells, 5,300,000; white blood-cells, 12,600; differential count: neutrophils, 61 per cent.; large lymphocytes, 14 per cent.; small lymphocytes, 13 per cent.; large mononuclears, 4 per cent.; transitionals, 5 per cent. Wassermann reaction is negative.

Roentgenographic Findings: Spine is normal. The long bones show no delayed union.

Course.—It is really unfortunate that more observations could not be made on the patient. He was too feeble-minded and could not interpret symptoms or obey orders. He left of his own accord, refusing all kinds of treatment.

This case is rather of an unusual type and bristles with difficulties in the way of diagnosis. The excess of fat in the torso, the undescended and small testicles, the hypotrichosis, the dull mentality and the absence of sexual desire would appear to be almost pathognomonic of Fröhlich's syndrome — dystrophia adiposogenitalis—dependent on changes in the pitui-

3. The following letters are used by orthopedists to designate certain definite points from which measurements are taken: R. A., distance from right anterior-superior spinous process of ilium to internal malleolus; L. A., left anterior-superior spinous process; R. U., umbilicus to right internal malleolus; R. T., circumference of the right thigh, in this case taken at 5 inches above lower border of patella; R. K., circumference of right knee; R. C., circumference of right calf.

tary and more particularly in the posterior lobe. But there are some difficulties that have to be answered before the diagnosis of Fröhlich's syndrome can be accepted. The adiposity is of a very remarkable type. While the condition of the upper limbs is about normal, that of the face and trunk is of excessive obesity, whereas that of the lower limbs is below normal and the buttocks are markedly emaciated. The sexual organs do not come up to the standard, and while the testicles are atrophied and undescended, the penis is about normal. The voice cannot be called distinctly feminine, but it is not masculine, either. Though the patient has some hair on the face and pubis, it is rather scanty and below par. His mental condition accords with Fröhlich's syndrome. A very close parallel distribution of fat in this patient will be found in Case 45 of Harvey Cushing, and in the case shown by Turney.[4] The fat over the spine shows the same creases as the case shown by F. F. Batten.[5] As the adiposity in this case fails to correspond with a case of dystrophia adiposogenitalis of pituitary origin, we have to think of other ductless glands, namely, the adrenals or sexual glands. With adrenal hyperplasia, the adiposity is general and is practically always associated with sexual precocity, of which there has been no indication in this case. Neither did this patient have adrenal tumor or pigmentation, which therefore speaks against adrenal hyperplasia. The scanty hair is not a symptom of adrenal hyperplasia, for in such cases we have increase of hair.

Fig. 3.—Case 2. The patient is bending body at right angle with the hips. Creases in the back entirely absent. The short big toes are easily distinguished.

Turning our attention to the sexual glands, we must recall that atrophy of these glands is always an accompaniment of pituitary diseases. As the testicles never descended, they were probably primarily involved, and the posterior lobe of the pituitary followed secondarily.

The occurrence of short thumbs and shortened big toes of both feet point directly to a disturbance in the secretion of the anterior lobe of the pituitary, which controls growth of bones.

This case is probably one of pituitary sexual gland syndrome, "polyglandular syndrome," the deficiency being mainly in the anterior lobe of the pituitary.[6]

I am greatly indebted to Dr. George R. Elliott for his kind and valued assistance, and to Dr. S. Wachsmann, the medical director of Montefiore Home and Hospital, for permitting me to report the second case.

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4. Turney: Proc. Roy. Soc. Med., Sec. Neurol. and Ophth., 1912-1913, vi, p. lxxi.
5. Batten, F. F.: Case of Hypopituitarism, Dystrophia Adiposogenitalis, Proc. Roy. Soc. Med., Sec. Neurol. and Ophth., 1912-1913, vi, p. xxxi.
6. This patient was shown in 1912 by Dr. G. R. Elliott at a meeting of the orthopedic section of the Academy of Medicine, New York, and various opinions regarding the diagnosis were expressed by the members present. The diagnosis was cleared up only after careful study by Dr. Elliott and myself.

THE INFLUENCE OF HOOKWORM DISEASE ON THE EYES

A STUDY OF FIFTY-THREE CASES *

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Whenever a new disease is discovered or an old one brought into prominence, the students of the various specialties make determined and laudable efforts to establish a serious connection between the disease in question and their particular specialties. The newly found (in America) hookworm disease and the students of ophthalmology may well be expected, therefore, to become involved in some sort of investigation. In this particular case, then, let us assume that the incidence of eye lesions in connection with uncinariasis might be of interest and importance in two ways:

1. Is the hookworm infection a causative factor in the existing eye lesion?

2. If it is a causative factor, is the presenting eye lesion sufficiently distinctive or characteristic to be of diagnostic aid in the clinical recognition of uncinariasis?

Before attempting to answer let us briefly consider some salient facts and some of the observations of others appertaining to the questions before us.

GENERAL CONSIDERATIONS

Uncinariasis, or hookworm disease, belts the earth in a zone about 66 degrees wide, extending from parallel 36 north to parallel 30 south. Practically all countries between these parallels are infected, and these countries contain nearly 60 per cent. of the earth's population.[1] The incidence of the hookworm ranges from 50 to 90 per cent. of the population of many of these countries. Evidently it is a world problem. In the rural districts of our Southern states approximately 40 per cent. of the people are infected with this parasite.[2]

Zoologists state that there are two different species of hookworm, the European and the American. As all are agreed that their effects are the same when infecting the human family we may, in this study, disregard the helminthologic distinction. The general pathology and symptomatology of the disease has been well covered in a somewhat extensive literature, which I have carefully considered,[3] but comparatively little has been done in the direction of any special study of ocular conditions in connection therewith.

EYE LESIONS NOTED IN THE UNITED STATES

Hansell[4] has reported the case of a boy aged 15 infected with hookworm and exhibiting serous and hemorrhagic retinitis with characteristic appearances of retinal anemia.

A. W. Calhoun[5] has reported two cases of uncinariasis exhibiting cataracts in patients aged, respectively, 42 and 14 years.

* Read before the Section on Ophthalmology at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

1. Hookworm Infection as a World Problem, editorial, THE JOURNAL A. M. A., June 22, 1912, p. 1946.
2. Fourth Annual Report, Rockefeller Sanitary Commission for the Eradication of Hookworm Disease, 1913.
3. The bibliography is well known and easily accessible—especially the Porto Rican studies by Ashford, King and Igaravidez, and the American studies by Stiles.
4. Hansell: Am. Med., 1901, ii, 412.
5. Calhoun, A. W.: Ophth. Rec., 1904, xii, No. 7.

F. P. Calhoun[6] reports four cases of uncinariasis, three of the patients, aged, respectively, 20, 26 and 22 years, exhibiting cataracts, and the fourth showing recurring spontaneous hemorrhage from the upper conjunctival fornix of the right eye.

Mauldin[7] reports a case of hookworm disease showing "iridocyclitis approximating an interstitial keratitis."

Stiles[8] says that in uncinariasis the pupils of the eyes have a decided tendency to dilatation, the patient may show a blank stare, and that night-blindness is reported in a number of cases. In another place Stiles[9] says:

> If the patient is directed to stare intently into the observer's eyes, there will be noticed a symptom which it is difficult to describe, but which I have found more constant than almost any other noticed, namely: After a moment, the length of time apparently varying slightly, according to the degree of the disease, the pupils dilate and the patient's eyes assume a dull, blank, almost fish-like or cadaveric stare very similar to that noticed in cases of extreme alcoholic intoxication.

Dock and Bass,[10] after a brief consideration of eye-lesions reported by foreign authors, say:

> We have often noticed that the pupil dilates readily and usually remains wide, even in the presence of considerable light, but this is a common symptom of all severe anemias.

The authors of this book report no original investigations.

So far as I am aware, these are the only published reports of observations in the United States of eye-lesions in hookworm disease. In the spring of 1910 I reported to the Greenville (S. C.) County Medical Society the cases of two girls, aged 10 and 14 years. Both had interstitial keratitis, and both were typical hookworm cases, easily admitting of snapshot diagnosis. This was verified microscopically and the patients were turned over to a colleague for thymol treatment. It is true that the family history, while not positively indicating it, was not such as to be above a suspicion of hereditary lues; but the improvement in the ocular conditions after two or three thymol treatments was little short of astounding. I thought I had made a very interesting and valuable observation, and so I had; but the most interesting part of it came a year later when both patients died of tuberculosis—one of the commonly accepted causes of keratitis parenchymatosa.

EYE-LESIONS NOTED IN FOREIGN COUNTRIES

The European observations on the incidence of eye-lesions in uncinariasis are somewhat fuller, yet even so the literature on the subject is apparently not extensive.

M. Rampoldi,[11] reporting in 1880, noted that in hookworm patients who complained only of a slight asthenopia, or of the lack of ability to fix objects, he found ophthalmoscopically a whitish retinal reflex, characteristic of edema of this membrane. In some cases visual acuity was diminished. In the case of a woman who died of hydremia he found a true exudative retinitis, which reminded him of Liebreich's cases of splenic leukemia. There were also hemorrhages into the retina, and he found lymphoid elements deposited in great quantity between the retina and the choroid.

Von Nieden[12] notes in these cases a pale conjunctiva and shining sclera. With the ophthalmoscope he observes marked paleness of the blood-current in the contracted arteries, and tortuous veins; sometimes arterial pulsation, porcelain-colored papillae and, above all, characteristic hemorrhages, like those of pernicious anemia, which lie as isolated spots or broad patches on the periphery of the retina and show a tendency to fatty degeneration. There is, he says, sclerosis and fatty degeneration of the vascular endothelium as in the pernicious anemia of *Bothriocephalus latus*. The subjective symptoms he describes as central disturbance of vision with narrowing of the field, anesthesia of the retina, accommodative and muscular asthenopia, with diplopia and a tendency to nystagmus. In spite of this picture, as outlined, von Nieden expresses the belief that the conditions are not due to anemia, but to a toxin. Out of 3,686 cases examined by him he found three cases of bilateral blindness.

Nuel and Leplat[13] say that miners suffering with hookworm frequently show disturbances of vision consisting of fatigue of the eyes without appreciable lesion; a certain amount of hemeralopia, and frequently nystagmus. These authors examined eighty-one cases and found in five the following changes: One showed retinal hemorrhages; another showed numerous retinal hemorrhages in the right eye, especially in the nerve-fiber layer, and a pale papilla in the left eye, with veins somewhat engorged; two other patients showed infiltration of papilla and retina; while the fifth, an albuminuric, had a neuroretinitis.

A. Nieden[14] announces that the hemorrhages of the ocular fundus are characteristic. He says that they occur more in the periphery of the retina, and are frequently in groups, point-shaped and close together, but without merging into each other. They frequently follow the course of the vessels, seeming to lie in the vessel walls, and appear rather like stripe-shaped exudates accompanying the vessels to the papillary area. In addition there are extensive blood-exudates in the retinal tissue, represented as large plaques with ray-formed margins. The microscope discovers sclerotic and fatty degeneration of the endothelium of the blood-vessels. In most cases the patient does not know that his eyes are affected, and he is troubled with scotomas only when the macula is the chief location of the blood-spots. More marked are the weakness of accommodation, asthenopia, fatigue of the eyes and periodic slight pareses of intrinsic and extrinsic muscles with diplopia and vertigo. Among miners there are frequently photophobia and hemeralopia. Also there is often a moderate narrowing of the field. The visual disturbances, he thinks, are caused not so much by the retinal changes as by the general symptoms of the disease. (Compare this description with von Nieden's observations abstracted above.)

Fischer[15] notes that the hookworm itself has never been found in the eye. Birmer asserted that retinal hemorrhage was pathognomonic of the anemia named after him, but this is incorrect, since it is well known, as Fischer observes, that retinal hemorrhages occur in

6. Calhoun, F. Phinizy: Eye Complications Caused by Hookworm Disease, THE JOURNAL A. M. A., Sept. 21, 1912, p. 1075.
7. Mauldin: Jour. South Carolina Med. Assn., 1910, vi, 521.
8. Stiles: Osler's Modern Medicine, i, 589.
9. Stiles: Quoted by Ashford and Igaravidez.
10. Dock and Bass: Hookworm Disease, St. Louis, 1910.
11. Rampoldi, M.: Cong. period. internat. d'ophth., 1880, Milan, 1881, vi, 283.
12. Von Nieden: Ophth. Klin., Stuttgart, 1903, vii, 181; Centralbl. f. prakt. Augenh., 1903, xxvii, 207.
13. Nuel and Leplat: Ann. d'Oculi., 1889, lii, 150.
14. Nieden, A.: Wiener med. Presse, 1897, xxxviii, 1094.
15. Fischer: Ber. d. ophthal. Gesellsch., Stuttgart, 1892, xxii, 26; Deutsch. med. Wchnschr., xix, 311.

all forms of anemia, but especially, he thinks, in ankylostomiasis.

Lutz[16] remarks that in ankylostoma infection the vessels of the fundus, especially the arteries, are contracted and the papilla is paler than normal. Lutz has also noted, as a rare sign, chemosis of the bulbopalpebral fold.

R. Rampoldi[17] relates a case of bilateral convergent strabismus, coming on suddenly, and accompanied by homonymous diplopia. Treatment for hookworm was administered and the strabismus disappeared.

Ashford and Igaravidez[18] state that in a series of cases of this disease, 69.5 per cent. had more or less serious disturbances of the eyes. (There seems to be an error in the figures, however, and the percentage should have been put at 34.9.) They go on to say:

> We cannot doubt that much of this was due simply to the degree of anemia, but there remains a considerable percentage . . . with more or less marked visual affections with very little anemia.

They quote Loebker and Bruns as remarking on the pallor of the eye-grounds, pulsation of veins, lowered intra-ocular pressure, venous tortuosity and, commonly, retinal hemorrhages. They note that many authors speak of edema of the papilla. They quote Siccardi as observing nystagmus, diplopia, amblyopia, muscular and accommodative asthenopia and restriction of the field. This author admits the possibility of anemia being the cause of most of the eye symptoms, and that functional visual disturbances may be due to reflex irritation from the intestinal tract, but avers that when we have a retinitis coincident with optic atrophy, the question of the presence of a circulating toxin must be considered. Ashford and Igaravidez emphasize the occurrence of "blurred vision" and night-blindness, and mention the fact that corneal ulcers have been reported, they having seen one case of the latter. They report that Lippitt, with a large experience, states that fully three-fourths of his cataract patients in Porto Rico were anemic.[19]

COMPARATIVE CONSIDERATIONS

Here, then, we have an array of symptoms and pathologic conditions, any of which — with the exception of cataract, noted and discussed below — might be fully expected to appear in the ordinary run of cases of anemia. The lesion most frequently noted and dilated on appears to be retinal hemorrhage, and one or two of the authors referred to above seem to think that the appearance of these hemorrhages in the peripheral area of the retina is more or less characteristic. This is assuredly a mistake, for such lesions commonly occur in other forms of anemia. Some idea of the frequency of retinal hemorrhages in anemia may be had from the figures quoted by Weeks,[20] which recite that of 238 American cases of pernicious anemia, 31 per cent. had retinal hemorrhages, and of 326 foreign cases 72 per cent. exhibited this eye-lesion.

In uncinariasis there is a decrease of the hemoglobin content and of the red blood-corpuscles, and a comparative increase in the leukocyte-count. When Weeks wrote his book, which was published in 1910, he had probably never given a thought to hookworm disease as having any influence on the eyes, nor, I believe, was there any reason why he should have, but the following brief extracts from his discussion of leukocythemic retinitis and the retinitis of pernicious anemia (which he remarks are very similar) make an interesting comparison with Nieden's report abstracted above: In the first-mentioned form of retinitis he says, "The fundus of the eye usually appears lighter in color than normal . . . the arteries are pale, often somewhat reduced in caliber . . . the veins are dilated, broad and tortuous . . . the retina often becomes hazy . . . numerous hemorrhages occur near the periphery of the retina . . . many striped or flame-shaped hemorrhages may occur in the vicinity of the disk," and in the retinitis of pernicious anemia he says, "The nerve-fiber layer of the retina is often edematous . . . in places the fibers are pushed apart by hemorrhages . . . the elements of the deeper layers of the retina are also separated by the constituents of the blood that have escaped from the blood-vessels . . . the escaped blood-corpuscles undergo degenerative changes . . . white corpuscles are found in the clots, and, in addition, small hyaline masses are present." Indeed, in this brief description one can almost see before his mind's eye one of Nieden's "characteristic" hookworm cases.

In reference to the blurring of vision and blindness mentioned as accompanying uncinariasis, it is to be noted that Kurtsinger[21] collected 198 cases of more or less complete blindness due to hemorrhage from remote parts of the body, the bleeding having been either sudden and profuse — a single hemorrhage — or slow and continuous (this is the method of extraction by the hookworm). It is interesting to observe that out of 189 of these cases, seventy-two were from hemorrhage from the stomach and intestine, and that three followed the application of leeches.

Some of the authors quoted above maintain that the presence of the eye-lesions which they have noted must be explained on the theory that there is a specific toxin in hookworm disease. But why should a mere theory be mooted to explain something that is already easily comprehensible and that has been demonstrated time and time again to be based on a well-recognized pathologic principle? Furthermore, if the eye-lesions were caused by a toxin, then those having the heaviest infections should produce the most eye symptoms; but this is not at all the case. It is well to remember that the retinal lesions of anemia are due either to a reduction in the amount of circulating blood, or to a change in the quality of the blood. The hookworm accomplishes both ends, whether or not it is the manufacturer and disseminator of a specific toxin, for it extracts blood in volume, and decreases the hemoglobin and red corpuscle contents. The hookworm, then, causes an anemia, by no means necessarily a toxemia, and any form of anemia may cause the eye symptoms we are discussing — a fact which has been recognized certainly ever since Helmholtz gave us the first ophthalmoscope more than sixty years ago.

In addition to the symptoms mentioned, pallor of the disk, exudative retinitis, retinal edema and vascular tortuosities are more or less common fundus

16. Lutz: Samml. klin. Vortr., Leipsic, 1880-1886, Inn. Med., No. 88.
17. Rampoldi, R.: Ann. di Ottal, Pavia, 1888-1889, xvii, 170.
18. Ashford and Igaravidez: Uncinariasis in Porto Rico, U. S. Senate Document 808, 1911, p. 96.
19. Two Japanese authors have had something to say on this subject, but I was unable to find a translator. The references are: Inoshita, Chingai Iji Shinpo, Tokio, p. 1160. Onishi, idem., xiv, No. 4, p. 2. Hisaki, Chiba Igahuhwai-Zassh, Tokio, 1900, No. 47, p. 1. For these and some other references I am indebted to Dr. Charles Wardell Stiles.
20. Weeks: Diseases of the Eye, 1910, p. 766.
21. Kurtsinger: Quoted by Weeks: Diseases of the Eye, 1910, p. 434.

changes in anemia, and cannot be considered as indicating any specific causation.

Dilatation of the pupil is of such common occurrence (a weakening of the iris constrictor) in the various anemias that it is familiar even to the general practitioner; yet many of such cases may be more fancied than real, since there is no fixed physiologic size for the pupil. In the fifty-three cases which I have tabulated I did not once see a really noticeably dilated pupil; but there were very few severe cases in this series. I failed entirely to elicit Stiles' "fish-like-stare" sign, though I made a number of efforts to do so. Ashford and Igaravidez, with their unlimited field of observation, were unable to recognize it.

Imbalance of the ocular muscles and accommodative weakness are not infrequently seen in anemia. It would be curious, indeed, if, in the general myasthenia, the delicate musculature of the eye should escape involvement.

It is hardly fair to accuse the hookworm in cases of hemeralopia and nystagmus. The authors noting these are foreigners, many of whose cases are in miners, who are, of course, as a class, peculiarly subject to these ocular symptoms.

As to nyctalopia, this is a phenomenon known to exist most frequently in tropical and subtropical countries, and it is therefore easy to understand why the principal references to this symptom come from Ashford and Igaravidez in Porto Rico.

F. P. Calhoun[6] believes and Hansell[22] concurs, that the cataracts which he has observed in hookworm patients were caused by a toxin originating from the parasite, and directs attention to the theory that some forms of cataract may be caused by circulating toxins of various sorts — chemical or biologic. It may well be that the hookworm evolves a toxin; Ashford and Igaravidez and others believe so, as I have already remarked, but it has never been demonstrated; and it is certainly strange, if there is such a toxin and it is a cause of cataract, that only five such cases have been reported in our Southern states, where it has been demonstrated that 40 per cent. of the population of the rural districts are the victims of uncinariasis.

Lippitt,[23] with a large experience, states that fully three-fourths of his cataract patients in Porto Rico were anemic. It is well known that cataract occurs more often among the lower classes and the poorly nourished than among persons in better environments. When, therefore, we consider that 80 per cent. of Porto Rico's population is infected with hook-worm,[24] and are consequently in poor hygienic condition, it is certainly not remarkable that three-fourths of all cataract patients in that island are observed to be anemic. Indeed, it is rather more to be wondered at, in the light of these facts, that the percentage of anemic cases in such a series does not go to a much higher figure.

A TABULATED SERIES OF FIFTY-THREE CASES

Other eye-lesions associated with anemia are some forms of choroiditis, vitreous opacities and palpebral folliculosis. Curiously enough, none of these have been mentioned heretofore in connection with hookworm anemia, yet they must have been present in some of the thousands of cases that have been examined. Doubtless, choroiditis has been overlooked in the frequent retinal involvement, though I saw traces of it in two cases (4 per cent.) of my series tabulated herewith (Cases 1 and 9). Vitreous opacities might, of course, be easily overlooked unless especially sought for. In my series I noted four cases (7.5 per cent.) of folliculosis (Cases 5, 40, 42 and 50).

In the fifty-three cases of my series there were thirty-five males and eighteen females. The ages ranged from 9 to 22 years. The diagnosis of hookworm was made microscopically in every case. Only one patient (Case 27) had been treated previously. Homatropin mydriasis was used in every case for retinoscopy and ophthalmoscopy. It was my impression (without actual timing) that the patients on the whole responded to the mydriatic more quickly than normal persons would have. The refractive errors were found to follow closely the well-known average of persons of like age. The two cases of interstitial keratitis noted have been referred to in the foregoing text. There were no marked eye-symptoms voluntarily referred to by a single patient. In twenty-six of these cases (approximately 50 per cent.) I thought I observed a shallowness of the anterior chamber, one of them (Case 37, a severe case) being especially marked. I cannot insist on this observation, however, since I had no means of accurate measurement, so that the report on this point is but a matter of opinion without substantiation, and I do not, myself, attach any great significance to it. The most common fundus changes were pallor and tortuous vessels, the latter occurring in twelve cases (22.6 per cent.). Retinal hemorrhage had occurred in only two cases (Cases 1 and 9), and then in but slight degree.

CONCLUSIONS

1. The answer to the first question in the opening sentences of this paper is that hookworm disease, by virtue of the qualitative and quantitative anemia and the general systemic ill condition for which it is responsible, is, in this indirect way, and in this way only, a causative factor in the various eye-lesions which have been described as accompanying it.

2. To the second question the answer is that none of the eye-lesions occurring in this disease are in any sense sufficiently distinctive or characteristic to be of diagnostic value.

The evidence, collected from various sources, seems complete enough, and in addition if, in a systematic examination of the eyes of fifty-three consecutive and unselected cases, we find nothing to point us to a specific causative factor for the eye-lesions, and nothing in the clinical ocular pathology that could be regarded as a distinctive diagnostic aid in the recognition of the systemic disease, we may safely conclude that, in the light of our present knowledge, the association of eye-symptoms and uncinariasis must be regarded as purely incidental, or at least that the eye-symptoms occur only as the sequelae of general pathologic conditions, the principles of whose existence have long been recognized.

It need hardly be pointed out that the importance of these conclusions lies, of course, in the fact that many cases of anemia, with or without eye manifestations, occur without an accompanying hookworm infection, and also that many cases of uncinariasis, with or without eye complications, are encountered which are lacking the symptom of anemia. The latter condition is seen in many apparently robust and even

22. Hansell: Discussion on article by Calhoun, Footnote 6.
23. Lippitt: Quoted by Ashford and Igaravidez.
24. Ashford and Igaravidez: Uncinariasis in Porto Rico, 1911, p. 179.

athletic young persons from the rural districts and is especially marked in the negro, who seems more or less immune to the hookworm syndrome, though Burdell[25] has shown that in certain localities in our South 65 per cent. of all negroes are infected with the parasite, and, while acting as intermediary hosts and active carriers of the disease, present no clinical symptoms whatever.

Obviously, it is well to know, when we see the signs of anemia in the eye-grounds, or in the facies for that matter, that we might properly suspect the hookworm of being a possible cause of the anemia; but beyond this our studies of the coincidental eye-lesions in uncinariasis have not yet carried us.

25. Burdell: Jour. South Carolina Med. Assn., 1910, vi, 326.

ABSTRACT OF DISCUSSION

DR. CHARLES W. KOLLOCK, Charleston, S. C.: Dr. Jervey asks: 1. Is the hookworm infection a causative factor in the existing eye-lesion? 2. If it is a causative factor, is the presenting eye-lesion sufficiently distinctive or characteristic to be of diagnostic aid in clinical recognition of uncinariasis?

EYE-SYMPTOMS IN FIFTY-THREE HOOKWORM PATIENTS*

Case	Severity of Infection	General Condition	Vision Without Correction		Conjunctiva	Cornea	Anterior Chamber	Retinoscope Refractive Error	Ophthalmoscopic Findings	Remarks
			R.	L.						
1	Light	Fair	15/15	15/15	Normal	Normal	Normal	Comp.hy.astig.	Tortuous vessels. Tiny old hemorrhage and pigment left.	
2	Light	Fair	15/20	15/20	Normal	Normal	Normal	Hy. astig.	Normal	
3	Light	Fair	15/20	15/20	Normal	Normal	Normal	Comp.hy.astig.	Normal	
4	Light	Fair	15/15	15/15	Normal	Normal	Normal	Hy.	Normal	
5	Light	Fair	15/20	15/20	Folliculosis	Normal	Normal	Comp.hy.astig.	Normal	
6	Light	Fair	15/15	15/15	Blepharitis	Normal	Shallow	Hy.	Slight retinal congestion	
7	Light	Fair	15/20	15/20	Normal	Normal	Normal	Comp.hy.astig.	Pale retinas, large veins	
8	Medium	Poor	15/15	15/15	Pale	Normal	Normal	Emmet.	Pale disks, tortuous vessels	
9	Medium	Poor	15/30	15/30	Normal	Normal	Normal	Mixed Astig.	Red disks, tiny hem. and pigment left	Epicanthus
10	Light	Fair	15/15	15/15	Normal	Normal	Normal	Emmet.	Retinas congested, disks indistinct	
11	Light	Fair	Illiterate		Normal	Normal	Shallow	Hy.	Normal	
12	Light	Fair	15/15	15/40	Normal	Normal	Shallow	Hy.	Venous congestion, tortuosities	
13	Light	Fair	15/30	15/30	Normal	Normal	Shallow	Hy.	Pale fundi	
14	Light	Fair	15/20	15/20	Normal	Normal	Shallow	Hy.	Normal	
15	Light	Fair	15/15	15/15	Normal	Normal	Shallow	Hy.	Normal	
16	Light	Fair	15/30	15/30	Normal	Normal	Shallow	Hy.	Normal	
17	Light	Fair	15/15	15/15	Normal	Normal	Normal	Emmet.	Central veins full	
18	Light	Fair	15/15	15/15	Normal	Normal	Normal	Hy.	Veins full and tortuous, disks obscure	
19	Light	Fair	15/30	15/40	Normal	Normal	Shallow	Hy.	Normal	
20	Light	Fair	15/20	15/20	Normal	Normal	Shallow	Hy.	Normal	Epicanthus
21	Light	Fair	15/15	15/15	Normal	Normal	Shallow	Comp.hy.astig.	Tortuous vessels	
22	Light	Fair	15/20	15/20	Normal	Normal	Normal	Comp. My. astig.	Deeply pigmented fundi, tortuous vessels	
23	Light	Fair	Illiterate		Normal	Normal	Normal	Hy.	Normal	
24	Medium	Fair	15/15	15/15	Normal	Normal	Shallow	Hy.	Normal	
25	Medium	Fair	15/15	15/15	Normal	Normal	Shallow	Emmet.	Normal	
26	Medium	Fair	7/70	6/70	Normal	Normal	Normal	Hy.	Deeply pigmented fundus, tortuous vessels	Alternating internal strabismus
27	Severe	Fair	15/15	15/15	Normal	Normal	Shallow	Emmet.	Retinal congestion, disks indistinct, tortuous vessels	Thymol treatment 4 weeks ago. Numerous ova now in feces.
28	Severe	Fair	15/15	15/15	Normal	Normal	Shallow	Emmet.	Right fundus normal, left congested	
29	Light	Fair	Illiterate		Normal	Normal	Normal	Emmet.	Pale fundi	
30	Light	Good	15/15	15/15	Normal	Normal	Shallow	Comp.hy.astig.	Pale disks	
31	Light	Good	15/20	15/20	Normal	Normal	Shallow	Hy.	Normal	
32	Light	Fair	15/20	15/15	Normal	Normal	Shallow	My.	Vessels full and tortuous	
33	Light	Fair	15/15	15/15	Normal	Normal	Normal	Hy.	Normal	
34	Light	Fair	15/20	15/20	Normal	Normal	Normal	Hy.	Pale fundi	
35	Light	Fair	15/20	15/20	Normal	Normal	Normal	Hy. Astig.	Vessels full and tortuous	
36	Light	Fair	15/15	15/15	Normal	Normal	Shallow	.....	.....	
37	Severe	Poor	15/15	15/15	Normal	Normal	Very shallow	Hy.	Pale fundi	
38	Medium	Poor	15/20	15/20	Normal	Normal	Shallow	Emmet.	Pale disks	
39	Medium	Poor	15/20	15/30	Normal	Normal	Shallow	Hy.	Fundi pale, disks hazy	
40	Medium	Poor	15/15	15/15	Folliculosis	Normal	Normal	Hy.	Pale fundi	
41	Light	Good	15/15	15/15	Normal	Normal	Normal	Hy.	Disks pale, vessels tortuous	
42	Light	Good	15/15	15/15	Folliculosis	Normal	Normal	Hy.	Normal	
43	Light	Fair	15/15	15/15	Normal	Normal	Normal	My.	Normal	
44	Light	Fair	15/70	15/70	Chr. congest'n	Normal	Normal	Comp.hy.astig.	Normal	
45	Light	Fair	15/70	15/70	Chr. congest'n	Normal	Normal	Mixed astig.	Normal	
46	Severe	Poor	15/15	15/15	Normal	Normal	Shallow	Emmet.	Fundi pale, vessels tortuous	
47	Light	Good	15/15	15/15	Normal	Normal	Normal	Hy.	Normal	
48	Light	Poor	15/15	15/15	Normal	Normal	Shallow	Hy. astig.	Normal	
49	Light	Fair	15/15	15/15	Normal	Normal	Shallow	Hy.	Normal	
50	Light	Good	15/30	15/20	Folliculosis	Normal	Shallow	Hy.	Normal	
51	Light	Fair	15/15	15/15	Normal	Smoky	Shallow	Hy. astig.	Normal	
52	Severe	Very poor	....	.....	Congested	Normal	Normal	.....	.....	Interstitial keratitis. Died tuberculosis one year later.
53	Severe	Very poor	....	.....	Congested	Smoky	Normal	.....	.....	Interstitial keratitis. Died tuberculosis one year later.

* In all the patients the pupils were normal in size and reaction, and the lenses were normal.

A careful study of the report of his cases leads me to conclude that in no instance is there a lesion or condition which could be ascribed to any particular cause. The only condition which he mentions as being more conspicuous than others occurred in twenty-six of the fifty-three cases reported and was an apparent shallowness of the anterior chamber. This was marked in one, a very severe case, while the general condition of the others in which it was noted was fair. He does not mention an increase of tension; in fact the opposite condition would be more likely observed in this class of cases, as a condition of the vessels and blood which permits the latter to pass through the walls of the former might also exist in and about the cornea and cause increased exosmosis and a temporary shallowness of the anterior chamber. This is, perhaps, theorizing too much, but there is no reason to deem it characteristic of anything more than a weakened general condition.

Calhoun, Hansell, Ashford and Igaravidez suggest that a toxin may originate from the hookworm and be a cause of cataract as other toxins have been supposed to be. Dr. Jervey well says that in the South, where 40 per cent. of the population have the disease, it is strange that only five cases of cataract have been reported. In the number of cases reported he is mistaken, though it will not alter his deductions. I have reported two cases of cataract in children having hookworm and have seen two others who were undoubtedly infected, though at the time nothing was known of the worm. These two had every appearance of the disease and came from a neighborhood where such cases were and still are very numerous. These children were from 8 to 12 years of age and on two I operated successfully for the removal of the cataracts. All were white. The negro is said to be immune to the effects of the worm and it is undoubtedly true that cataract is less frequently seen in the negro than the white child, even the zonular variety which is probably due to congenital causes. I have sometimes thought that the corneal affections, so common in the negro, might be indirectly due to the hookworm, but of this there is no proof and a more likely cause is syphilis. Night-blindness is much more frequent among negroes than whites, especially among children, sometimes in those who appear in fair condition and often among those who suffer from xerosis. Xerosis and night-blindness, which often go hand in hand, are very rare in white children in my part of the country, while uncinariasis is of every-day occurrence. It would be strange, if night-blindness is caused by the worm, that it should occur so frequently in the negro, who is immune, and so seldom in the white child, who offers a fertile soil. The numerous conditions which have been mentioned by writers, such as retinal hemorrhages, pallor and edema of the retina, haziness of the optic disk and weakened accommodation, are all such common associates and followers of the various anemias that it would take a wide stretch of the imagination to class them as pathognomonic of the disease until much more is known about it than now.

My own experience and a digest of the views of others cause me, therefore, to accept the conclusions of Dr. Jervey as correct until, at least, further investigations shall prove to the contrary.

Dr. F. Phinizy Calhoun, Atlanta, Ga.: My remarks are not a criticism of Dr. Jervey's paper, but a defense of my views presented before this Section in 1911. That ocular changes do occur, no one can deny, and Dr. Jervey's report of fifty-three cases shows a fairly large percentage of eye complications, namely, two cases of retinal hemorrhage and twelve cases in which the retinal veins were congested or tortuous—evidences of circulatory changes. I believe that Dr. Jervey and I agree that eye complications do occur in hookworm disease, and the only real point of difference is whether an anemia or a toxemia is the exciting cause.

Dr. Jervey's views, expressed in the answer to his first question, brings up an old subject in the discussion of hookworm disease, namely, the existence of a toxemia and the cause of the anemia. It was early assumed that the worms attaching themselves to the alimentary wall would lead to hemorrhages and the resulting loss of blood would cause the characteristic anemia. Necropsies have shown only a severe, profuse catarrh of the small intestines and often spots of hemorrhagic infiltration with the worms hanging to it. It does not follow that the worms suck the blood; in fact, Loos insists that their natural food is intestinal epithelium, and although blood is found in the intestines of the worms, the red corpuscles are not digested. These findings led to the belief that hookworm anemia was one of toxemia and not secondary to the loss of blood, and two main theories have been propounded: that the worm directly secretes a toxin, or that this toxin is produced by some extraneous organism, as intestinal bacteria. Numerous attempts have been made to isolate a hemolytic substance, with varying success. As to which theory is correct I do not venture an opinion, but I rely solely on my clinical observations and the words of students of this disease, that a toxin does exist. I, however, have seen cases of great anemia in hookworm disease in which a few worms were found; this is substantiated in one case of hookworm cataract with anemia and few worms. The fact that no specific toxin has yet been positively demonstrated should not lessen our belief that it does exist. Within a few days after the administration of the treatment for the elimination of the worms, the patient's symptoms of malaise and general lassitude disappear, yet it is weeks or months before the corpuscular and hemoglobin elements in the blood approach a normal. Again, chlorosis more nearly than any other chronic ailment approaches hookworm disease in its anemia. In the former, there is the usual development of the genitalia, pubic hair and even a beard, whereas in the latter, all are markedly undeveloped.

We find certain extra-ocular and asthenopic changes associated with disease, many of them present in other serious chronic ailments due to a "systemic ill condition," as Dr. Jervey aptly puts it, but for the more serious intra-ocular findings, such as changes in the retina, choroid and even the lens, I do believe that hookworm disease *per se* is the cause, and not in an indirect way through the anemia, just as circulatory changes of the retina occur in chronic nephritis, diabetes, the cancerous cachexia and even pellagra, analogous diseases in which eye changes, even cataract, have been recorded. Whether we believe in the toxin theory of hookworm disease, or the existence solely of an anemia, lenticular changes in young people can be explained, on account of the anatomic relation of the lens to the ciliary body, iris and humors of the eye which supply its nourishment. Given a hookworm subject who states positively that at one time he saw distinctly and many months after the initial lesion (ground-itch) his sight began to fail, and when extracting a milky-white, soft cataract, there were seen retinal disturbances, such as tortuous vessels and small hemorrhages, which disappeared after the elimination of the worms and health restored, is it not reasonable to suppose that the hookworm was responsible for these changes? Such has been my experience with a case not profoundly anemic.

By no means does it follow that if the eye lesions were caused from a toxin then those patients having the heaviest infection of hookworm should produce the most eye symptoms. I am not sure that the severest cases of anemia, diabetes or nephritis show the most eye changes. I have seen, in a few hookworm patients, eye lesions such as tortuous veins, choroidal changes and spontaneous hemorrhages from the conjunctiva without a profound anemia and the number of worms expelled were in fair quantity.

The existence of any characteristic eye lesion associated with or caused by hookworm disease I myself seriously doubt, but the fact that reports have been made should serve to stimulate certain ophthalmologists and field workers in the disease to the further investigation of the subject and to report their findings. Only from hundreds of such reports can we accurately draw conclusions.

Dr. J. W. Jervey, Greenville, S. C.: I think Dr. Calhoun feels that I have in some way argued against the existence of a toxin in hookworm disease. By no means do I take that stand. There may readily be a toxin. Perhaps there is. I don't know. I know it has never been demonstrated, and that statement was my only reference to toxin. With regard to the other matters, I think the argument is presented in full in the paper.

THE TREATMENT OF ALBUMINURIA IN PREGNANCY *

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A perusal of the literature on albuminuria of pregnancy, during the past forty years, shows that our profession was constantly on the alert to grasp anything new that would offer a chance for improvement. The interest in the treatment never flagged and at the present time we are divided into two great forces, one for active interference and the other for an expectant plan coupled with sedative and eliminative medications.

It is interesting to notice how many are constantly leaving one camp to enter the other.

During 1875 and 1876 I was a student at the obstetric department in the Vienna General Hospital, and carried away wth me the experience and teaching of Carl Braun, Bandle, Spaeth and others. The treatment was eminently conservative. Many deaths of mother and child, as I look at it to-day, have been the result. A less conservative treatment usually killed the child and many mothers were made invalids for the rest of their days by forcible delivery, unless they died of such efforts. I learned to dread this difficulty as I did no other. Every case soon became a study by itself. Every method of treatment had its pitfalls. No method of treatment sufficed for all cases. It became necessary to classify the cases as they came to me. I propose therefore to give the result of such treatment as has been my custom at the bedside.

Fads and fancies have never been indulged in. Such fanciful treatment as extirpation of both breasts found no favor with me. As long as our knowledge of the causation is so meager our treatment must remain empirical and the personal equation of the attendant will be a factor in the result.

While laboratory methods of diagnosis are all-important and must not be lost sight of, the clinical picture and bedside symptoms must ever be our guide for action.

The albuminuric patients who come to us early in their pregnancy and are discovered early are those whose cases rarely give us much trouble. On the other hand, the explosive cases are much to be feared. The former readily respond to diet, hot packs and purgations, especially when the subjective symptoms are mild, the percentage of urea normal, or nearly so, the quantity of albumin little, the skin active and blood-pressure not excessive.

The latter needs heroic measures. During many years of active clinical obstetric practice, I have gradually formulated for myself a classification of the cases as to their severity and treatment. In doing so, one can well separate the cases occurring in the primipara from those of the multipara for reasons to spoken of later.

In discussing albuminuria of the primipara, there are three cardinal conditions which we must consider: (1) the character of albuminuria, (2) the presence or absence of uremic symptoms, and (3) the time to which pregnancy has advanced. From these conditions it has been my custom to consider each case as coming under the following subdivision in regard to treatment. It has been my special effort at all times to do the best I can for the child. It has certain rights which should be respected.

1. A primipara who presents albuminuria of slight or moderate degree with few or no kidney elements and no uremic symptoms at a time before the viability of the child should have close observation, and a salt-free and restricted diet, with an occasional calomel purge. This is all that is necessary and will usually carry the case along nicely.

2. In a primipara before the viability of the child with much albuminuria and many kidney elements, reduced quantity of urea and urine but still no uremic symptoms, we are confronted with a more severe problem, for uremic symptoms with high blood-pressure may supervene at any time. I consider albuminuria of this type before the seventh month in the primipara a very serious condition. At six months and before, I have seen it but once.

Again, calomel purges, with a more restricted diet of milk and green vegetables, rest in bed, and close and constant observation is my refuge for fear the patient may lapse into the next condition.

3. We now come to the condition in which, the child being now viable, there is an increasing and severe albuminuria and many uremic symptoms, as shown by partial blindness, headache, convulsions or even coma. Fortunately the condition at this time is rare, but then also very dangerous.

If convulsions have not set in, and absolute rest, calomel, lavage of stomach and rectum, morphin-chloral, an absolute milk diet and veratrum viride have had no effect in staying the severe symptoms, we should induce labor. In these cases venesection should not be lost sight of. Time is an important element, and if we have missed our chance at an early induction of labor, convulsions and coma may supervene and we shall be driven to a vaginal or cesarean section.

The time has now come when we must empty the uterus and do it with as little injury to the mother as possible.

4. When during the viability of the child there has been a gradual, though increasing, severity of the symptoms, we should still make efforts to stave off the evil hour by such appropriate treatment as has already been spoken of. If, however, the reverse is the case, that is, the albuminuria and uremic symptoms have come on suddenly and with great severity, early delivery by induced labor should be our choice, provided there is sufficient time.

When convulsions have supervened or there is great edema of the retina and headache, the classical cesarean section has been my choice. I have not seen much of the vaginal cesarean section in these cases and it has seemed to me that this is rapidly losing ground with the profession.

5. Until now I have spoken of those cases that have been under careful and constant observation and I now wish to consider the patient as brought to us in convulsions, any time during the last two or three months of gestation and without any symptoms of labor.

If there are lucid intermissions and the patient talks and acts sensibly, I again make efforts to carry her along by the use of calomel and enemas; but if there is much edema by the starvation treatment, veratrum viride or morphin, etc.

When, however, there are no lucid intervals and coma is deep and lasting in spite of blood-letting, it

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Fifth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1914.

has been my rule to proceed to a cesarean section, because I think that it offers the mother and child the best chances for life and is the least mutilating of all procedures for the former.

A forcible delivery by the vagina subjects her to no end of severe and incurable injuries and usually kills the child. Neither do I think well, therefore, of rapid dilatation, accouchement forcé, or even a turning with the cervix long, narrow and unyielding. Forcible dilatation, no matter how accomplished, with us means injury to the cervix, broad ligament, vagina and to the pelvic floor, and is commonly irreparable.

6. Lastly we arrive at that more fortunate condition when the patient in labor is brought to us in convulsions or even coma with a free dilatation or even a retraction of the cervix. Chloral hydrate, morphin, venesection or veratrum viride followed by the forceps give both mother and child a good chance.

I have had no experience with pituitary extract in these cases. When, however, such a primipara comes to me in convulsions without any dilatation, and not in labor, I have (with much hesitancy at first), since 1900, done cesarean section. My hesitation has lost us many children, about 60 per cent. In the latter half of my experience I have lost but 30 per cent.

Gradually I have had increased confidence, and all expectant treatment in these cases has been abandoned for that method of delivery.

In our treatment of all these cases we must not forget the dangers of chloral, morphin or veratrum viride. The latter is an especially dangerous drug and needs careful supervision.

The greater danger is with the primipara. The multipara rarely presents such violent and dangerous symptoms, but 8 per cent. of my severe fulminating cases were multiparas, and all mothers and children were saved. Albuminuria usually occurs late in the pregnancy, and convulsions and labor often seem concomitant. Those cases which show albuminuria coming on gradually are more easily managed, and I have never seen any untoward results.

During the last fourteen years we[1] have gradually abandoned all temporizing treatment in the cases of severe convulsions and have done the classical cesarean section, and record the death of 10 per cent. of mothers in forty cases, while we lost 45 per cent. of all the children.

Some of these children lived for from six hours to twelve days, but were recorded as lost because they were still in the hospital. During the time that we temporized, say the first twenty cases, we lost 60 per cent. of the children while the mothers' death-rate was 10 per cent.

If we had refused operations in the cases that have been subjected to vaginal interference, the death-rate of the mothers would have been but 5 per cent. None of these patients were in labor; they were all antepartum cases. When we look back to the days of forcible dilatations and delivery, and remember all the invalid mothers, we are glad to record the freedom from the pelvic injuries. Many patients report repeated pregnancies following our work, one as many as seven, with perfect freedom from accidents.

By the kindness of Dr. Bunting of Elizabeth, N. J., I have his report of twenty-nine cases of convulsions carefully tabulated and skilfully treated after the manner of the Rotunda Hospital. He records 17.2 per cent. of deaths of the mothers, and 37.9 per cent. of deaths of the child. Of the latter, 14 per cent. were thought not to have been viable. All the mothers were brought in with convulsions and about 10 per cent. were multiparas with no loss of the mothers and one dead child, one child alive and one child not yet born, the mother having recovered from the illness; 79.3 per cent. of the cases were delivered naturally and about 7 per cent. were forceps cases and a similar number of cases had induced labor.

I am glad to have these figures, as they represent an excellent result of the expectative plan of treatment as practiced by the Rotunda Hospital, of which morphin, repeated as convulsions return, lavage of the stomach and colon, castor oil and croton oil, absolute quietness and starvation are the main features.

This treatment is worthy of our consideration and offers the non-operating obstetricians a good field for observation and satisfactory results. To compare results in various hands I have looked over a few statistics published in 1912. I find that Helsingfors has a mortality of 30.8 per cent. for mothers in the cases of forcible delivery. Nothing is said of the miserable condition of the mothers who have recovered in after-life. Voight of Berlin reports 43.7 per cent. deaths of the mothers delivered by the Stroganoff method and 37.5 per cent. of the children.

The Geneva clinic represents a death-rate from conservative therapy of 52.2 per cent. for the mothers and 61 per cent. for the children. In rapid delivery the mothers' death-rate is 10 per cent. and the child's 12.5 per cent.

Bellingham-Smith reports a death-rate of the mother after conservative treatment of 16 per cent.

Dührssen has 15 per cent. of deaths following active treatment. Our results for the mother and child compare well with these and we shall continue until convinced of something better.

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1. The cases reported are those of Dr. Charles L. Ill and myself and our assistants.

TREATMENT OF THE TOXEMIAS OF PREGNANCY *

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In recent years our conception of the toxemias associated with pregnancy has assumed an entirely new aspect. We are now beginning to realize that all the symptoms incident to gestation are secondary to some substances circulating in the maternal blood-stream, which have their origin in the products of conception; that is, from the fetus or placenta, or perhaps from the rapidly growing uterus. The severity of the symptoms depends on the quantity of these substances thrown into circulation, and also on the ability of the mother to react to these substances.

Heretofore all our investigations were directed to the changes found in the kidney, liver and even the brain, and the symptom-complex was attributed to the alteration of function in these organs. The pathologic changes found in the various organs, in patients who succumbed to one of the toxemias of pregnancy, are at present considered secondary to the effects produced by the foreign substances circulating in the maternal blood-stream.

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The nature and exact origin of these substances is as yet not definitely known. The preponderance of clinical investigation, however, points to the fact that these symptoms of intoxication are due to a protein substance found in the blood-stream of the pregnant woman and never present in the non-pregnant state.

CAUSATION OF TOXEMIAS OF PREGNANCY

The studies and observations of Abderhalden prove conclusively that there is a definite reaction in the serum taken from the pregnant woman and that the blood undergoes great changes. The recent studies of Rubsamen and Schwartz and others prove that the serum taken from cases of the various forms of toxemias has a markedly deficient, or an entire absence of, cleaving power. Investigations as to the cause of the onset of labor, recently published by von der Heide, Weltz and myself, I believe, furnish additional proof that the various conditions associated with the toxemias of pregnancy have their origin in the maternal circulation. Heide considers his results in reference to the onset of labor as an anaphylactic reaction. He thinks that normally the birth act is brought about by the slow transmission of fetal substances into the blood of the mother which gives rise to the formation of antibodies — "labor substances," as he terms them. Toward the end of gestation these substances are transmitted to the blood of the mother in excessive amounts. That there is a deluge of these substances is proved by the contractions which arise in the last weeks of pregnancy and also by the uniform results obtained by the injection of fetal serum in inertia.

The whole range of the toxemias of pregnancy, and especially eclampsia, should be viewed from the point of view of the maternal circulation overcharged with foreign protein substances. In eclampsia, we have many clinical manifestations pointing to this. The sudden onset of symptoms and their sudden disappearance, the sudden changes found in the urine and their sudden disappearance, the more frequent occurrence of toxemias in primiparas and the fact that eclampsia is more frequent in twin pregnancies tend to prove that these manifestations have their origin in the fetus and placenta.

Wolff-Eisner has proved positively that during pregnancy foreign protein substances are continually thrown into the circulation of the mother and that these substances under certain conditions bring about a state of eclampsia. He contends that eclampsia must be considered as the rarest and most severe form of those symptoms dependent on the absorption of foreign albuminoids. The single manifestation of the absorption of foreign substances during pregnancy stands in the same relation clinically as the varied reactions due to the absorption of the pollen protein, harmless conjunctivitis on the one hand, and severe asthmatic attacks on the other, both caused by the absorption of the same pollen protein.

I believe that the references cited above and the observations of many others will ultimately establish the fact that the toxemias of pregnancy are invariably due to a disturbed metabolism, or to be more exact, a loss of metabolic equilibrium in the mother, produced by some foreign substance originating in the fetus or placenta. Normally, these foreign substances are neutralized by the formation of antibodies and therefore no harmful effects result in the greatest number of cases. If, however, the mother is unable to produce a sufficient amount of antibodies or, on the other hand, if the production of foreign substances is disproportionately great, the equilibrium of the maternal metabolism is disturbed, resulting in one of the forms of toxemia.

TREATMENT

Having formulated a probable underlying etiologic factor for the toxemias of pregnancy, we shall now turn our attention to their treatment. Clinically, we recognize two definite varieties of intoxications: (*a*) those occurring in the early months of pregnancy characterized by nausea, morning-sickness, which in a good number of cases if not properly attended to terminates in the severe intoxication commonly known as the pernicious vomiting of pregnancy, and (*b*) those occurring in the last three months of pregnancy, characterized by headache, dimness of vision, slight epigastric pain, an appreciable rise in the blood-pressure and appearance of albumin in the urine. Practically all these cases, unless promptly attended to, terminate in eclampsia, with all its accompanying pathologic complications.

Our success in the treatment of these conditions must depend primarily on the ability to recognize the premonitory signs and symptoms which are always present as a danger-signal. We have succeeded in educating the profession at large to the fact that there is a definite preeclamptic stage, and therefore in carefully observed cases, eclampsia is usually prevented. Unfortunately the same cannot be said to be true of toxemias occurring in the early months. This is so, for in the majority of cases we do not give serious thought or consideration to the patient until symptoms of pernicious vomiting have set in, and it is then often too late for treatment. We must now come to realize that as there is a definite preeclamptic state, so is there also a premonitory stage to pernicious vomiting, which should be easily recognized. Given a case of persistent vomiting and retching, bearing no relation to the intake of food, with an appreciable increase in the pulse-rate, and beginning signs of emaciation, the case, if not attended to and allowed to continue, will terminate fatally.

In the light of experience, I dare say that prophylaxis is the key-note to the successful treatment of all forms of the toxemias of pregnancy, and that no case which is carefully observed should be permitted to reach a stage of pernicious vomiting or eclampsia. Our attitude in these cases must be, and unalterably so, that if the patient does not promptly respond to treatment, pregnancy must be quickly terminated. No one, no matter what his experience may be, can undertake to foretell how rapidly the patient's condition may reach a point which will defy any and all of our known therapeutic measures. Our duty, therefore, is to conserve the life of the mother primarily, and no treatment is justifiable which tends to save the child at the expense of the mother.

Experience has taught us that toxemias of pregnancy usually do not recur. On the contrary, we have come to believe that once a patient has passed through one of the forms of intoxication associated with pregnancy, she has probably become immunized against future recurrences. Formerly pregnancy was forbidden to a patient who had had eclampsia, while now we do not consider it an obstacle to future pregnancies.

In the course of my investigations with fetal serum to cause the onset of labor my attention was first

directed to the possibility that the toxemias are caused by some foreign protein substances circulating in the maternal stream which have their origin in the product of conception. Case 19 of that series was that of a woman who was admitted to the hospital with severe symptoms of threatening eclampsia. She had severe headache, disturbance of vision, slight edema of the lower extremities with a history of having passed very little urine during the past twenty-four hours. Examination of urine showed it to be full of albumin and casts. In view of the clinical findings, induction of labor was decided on. The patient was a relative of one of the nurses on the hospital staff. The various methods of induction of labor, including the use of fetal serum, were suggested. She was asked if she had any objection to the use of the serum. Her answer was "to use my own discretion in the case."

I decided to bring on labor by the use of the serum, and not only did it cause the onset of labor, but also the urinary symptoms cleared up after the first injection, all toxic symptoms improving before labor actually set in. Realizing the possible therapeutic value of placental serum in late toxemia of pregnancy, I decided to make use of it in early toxemia, that of pernicious vomiting.

How does the serum act? If it is true that foreign substances which are of toxic nature are constantly thrown into the circulation of the pregnant woman, we are naturally justified in assuming that all women who pass through pregnancy and labor normally must of necessity produce certain neutralizing elements which counteract these toxic substances. Therefore the injection of serum from a normal healthy pregnant woman into one who for some reason is unable to produce these antibodies will not only actually add these neutralizing substances, but also stimulate the circulation toward an increased formation of them.

In order thoroughly to study and arrive at a definite conclusion of the effects produced by the injection of serum in the various toxemias of pregnancy, it is necessary to begin treatment early, before the maternal system is saturated with these toxic substances. In early cases the therapeutic effect of serum should be almost spontaneous. Unfortunately we have not the opportunity of seeing the patient until the condition is far advanced, all remedial measures having already been tried without avail. The patient is then brought to the hospital usually emaciated, with high pulse-rate and all the signs and symptoms of exhaustion. In the latter period of pregnancy, the patient has either had convulsions or is threatened with one. At this stage no amount of serum can possibly be of any value, for not only will the quantity required to counteract this advanced intoxicated condition be too great, but the time lost by this treatment added to the uncertainty of the outcome compels us to resort to a safer method, namely, the prompt interruption of pregnancy.

The advantage of the serum treatment is that if improvement is to take place, it is usually noticed very early, and if after a trial of from thirty-six to forty-eight hours the patient fails to show signs of improvement, it should be discontinued. My experience with the use of placental serum consists of four cases of pernicious vomiting and three cases of threatened eclampsia.

CASE 1.—History No. 3808. Mrs. J. G., aged 28; primipara, Russian, wife of dentist, patient of Dr. P. Hurowitz, menstruated last, Sept. 10, 1912. She gives history of persistent vomiting for the past five weeks; was confined to bed the last four weeks. She lost a good deal of weight, and seemed exhausted. Interruption of pregnancy was advised by attending physician. I saw her at her home with Dr. Hurowitz, November 21. We decided to remove her to the hospital and try the injection of fetal serum, and if no signs of improvement were noticed within from thirty-six to forty-eight hours, to induce an abortion.

She was admitted to the Jewish Maternity Hospital the same day. Urine showed slight traces of albumin; urea normal; specific gravity, 1.012; some granular casts. Blood-pressure was 95. Ten c.c. of placental serum was injected intramuscularly at 5:50 p. m. Patient continued to vomit. At 8 p. m., 10 c.c. of placental serum was again injected. Patient felt somewhat nauseated but did not vomit. She slept from 12:30 to 5:50 a. m. and did not vomit during the night.

November 22, 10 a. m., 10 c.c. of placental serum were injected into the right thigh. Patient did not vomit during the day but felt highly nauseated; passed 35 ounces of urine during the twenty-four hours.

November 23, patient did not vomit but complained of pain in the back and abdomen and of a slight headache.

November 24 and 25, patient felt very much improved.

November 26, general diet was given. She continued to improve and was discharged from the hospital November 28.

Patient remained well until December 7, when she again commenced to vomit. I was not notified until December 10, when I saw her again. She appeared quite exhausted. She was readmitted to the hospital on the same day. At 4 p. m. 10 c.c. of placental serum was injected and a second injection of 10 c.c. was given at 8 p. m. Patient did not vomit until 11 p. m.

December 11, 2 p. m., 15 c.c. were injected. Blood-pressure 110. Patient felt very much nauseated but did not vomit. At 8 p. m. she began to vomit quite severely. Ten c.c. were again injected.

December 12, 1 a. m., patient vomited fluid tinged with blood, but did not vomit any more during the night.

December 13, patient vomited once, but felt nauseated the entire day. December 14, patient complained of pain in the abdomen; vomited once at 9 p. m. and felt nauseated.

December 15, 10 c.c. of serum again injected. Patient did not vomit. General condition better. December 16, patient vomited twice, felt weak. December 17, she vomited a few times but did not seem to be affected by it; felt much better.

December 18, patient vomited a few times and felt nauseated. At this stage of her illness her general condition was very much better. While she still vomited a few times she retained a good deal of food. I commenced to give her 2 drams of the placental serum by mouth, every two hours. Patient still vomited occasionally until December 22, when her vomiting ceased.

She remained in the hospital until December 31, and was discharged in good condition.

CASE 2.—History No. 3946. S. B., aged 20, primipara, pregnant eight weeks, was confined at Mount Vernon Hospital in charge of Dr. Goodwin. General condition was very poor. It was doubtful if she could withstand interruption of pregnancy. Her pulse remained between 140 and 150. I suggested to Dr. Goodwin to try placental serum as there was not much to lose. Patient was transferred to the Jewish Maternity Hospital the same morning, Dec. 30, 1912. At 3 p. m. 12 c.c. of placental serum were injected intramuscularly. Patient still continued to vomit. Two drams of serum every two hours were given by mouth.

December 31, patient continued to vomit, but general condition was better, conjunctivae less jaundiced.

January 1, pulse dropped to 108 and patient was vomiting less; she retained a certain amount of a koumiss preparation.

January 2, general condition was much better; pulse between 108 and 116; patient complained of some headache.

January 3, patient was put on general diet and during the following ten days of her stay in the hospital she gradually

improved, vomiting only occasionally. She was discharged, January 13, in good condition.

CASE 3.—History No. 4023. A. G., patient of Dr. Ralph Waldo, admitted to Lebanon Hospital, Feb. 24, 1913. Tertipara. Three weeks prior to her admission she began to vomit and at the same time to lose weight. Urinary examination showed traces of albumin, 7½ grains of urea to the ounce and a few hyaline and granular casts. Notwithstanding all treatment, patient continued to vomit. March 7, at the suggestion of the pathologist, Dr. E. Bernstein, 15 c.c. of placental serum were injected intramuscularly. Patient vomited half an ounce of greenish fluid. An hour later she began to retain some broth and soup. March 9, 10 c.c. of serum were again injected. Patient was taking more nourishment. March 11, patient developed erysipelas of the right ear and face. March 13, patient died while expelling the fetus.

CASE 4.—Patient of Dr. Dorsey M. Lewis of Middletown, Del., aged 38, sextipara, menstruated last Oct. 6, 1911; admitted to the Jewish Maternity Hospital, May 12, 1912, with the following history: Three weeks prior to her admission, patient commenced to have severe headaches and general weakness; felt nauseated and vomited two or three times a day. At the same time she noticed that her sight was failing. On admission patient gave all the classical symptoms of an impending eclampsia. Induction of labor was decided on and at the same time 10 c.c. of placental serum was given intramuscularly.

May 13, patient had a comfortable night, headache slightly better. Blood-pressure fell from 238 to 180.

May 14, catheter was removed as it failed to produce uterine contractions. Patient was again injected with 26 c.c. of placental serum. Her general condition was much better; passed a greater quantity of urine and eyesight improved. Blood-pressure 165.

May 15, general condition good; patient felt comfortable. Blood-pressure 190. Five c.c. of serum again injected.

May 16, patient much brighter, was able to write address on an envelope. Five c.c. of serum given.

May 17, patient began to complain of slight abdominal pain. At 9 p. m. active labor pains set in and patient was delivered at 11 p. m., child weighing 4 pounds 11 ounces, and alive. Patient gradually improved and was discharged May 29. In this patient I am not certain what caused labor to set in as the catheter was removed three days prior to the onset of labor. It is questionable whether the continued use of placental serum did not incite uterine contractions. The general improvement noticed after the first injection of the serum, however, no longer made me feel concerned as to the termination of labor.

CASE 5.—D. M., aged 30, secundipara, menstruated last June 15, 1911. Admitted to the hospital March 4, 1913, complaining of severe headaches, dimness of vision and slight edema of the legs. Urine was full of albumin, and hyaline and granular casts. March 5, at 2 p. m., patient was injected with 11 c.c. of placental serum, intravenously. After the first injection she appeared improved, the albumin and casts diminished in quantity, she developed a polyuria, and in three days all the symptoms pointing to eclampsia disappeared. March 6, patient was again injected with 22 c.c. of placental serum. March 7, another injection of 20 c.c. was given. She was delivered March 7, at 3 p. m., of a female child weighing 8 pounds. In this patient the serum was used to cause the onset of labor, as mentioned above.

CASE 6.—A. S., aged 28, primipara, had two miscarriages, first in the fifth week, second at two months. Menstruated last Dec. 1, 1912. About two weeks later, patient began to complain of some distress over the lower portion of the sternum. Same continued until about January 15, when she began to vomit, increasing in severity and not limited to any period of the day.

She was admitted to the Jewish Maternity Hospital March 17. Fifteen c.c. of placental serum were given intramuscularly with no appreciable effect. Two drams of the serum was given every two hours by mouth. March 18, 10 c.c. of serum were injected; patient still vomited, but general appearance was better. Blood-pressure 120. March 19, 20, 21 and 22, patient's condition was better; she retained some food. March 23 and 24, patient felt much worse, did not retain any food, very restless and had severe headache. Blood-pressure 111. Patient felt slightly better on the 25th, 26th and 27th. March 28, patient grew worse and I decided to inject the serum intravenously. Ten c.c. were given. Patient had slight reaction and some precardial pain lasting about five minutes. The following day the patient did not vomit. March 30, patient once vomited during the night. March 31, patient began to vomit again, but not so severely. Partly retained food. Urine analysis showed no albumin or casts.

The diet for these patients was not limited. The nurse was instructed to give them all the food they asked for. As a general principle they were given lesser quantities at more frequent intervals. Vomiting was not a contra-indication for food. The patients' preference for a particular variety of food was always attended to. They were all given large quantities of water to drink. As a rule, they were kept in bed, and as soon as the general condition improved they sat up on a chair and even walked about the room. These patients as a rule do not sleep and are restless, and this was controlled by trional in sufficient doses. Sleep is essential in these cases of exhaustion.

ECLAMPSIA AND ITS TREATMENT

The great advance of surgery in recent years, and the safety with which the entrance into the peritoneal cavity has been made, very naturally have opened a new field for the relief of this condition, and the treatment of eclampsia soon became a battle-field for those who held opposing views.

The maternal and fetal mortality has always been so great that the obstetrician was very eager to avail himself of procedures, radical in nature, but surgically apparently correct, and based on sound reasoning. This brought forth two distinct groups of men: (*a*) those who advocated the immediate emptying of the uterus, either by vaginal or abdominal cesarean section, and (*b*) those who adopted a watchful waiting policy, and treated the convulsions, instead of striking at the root by interrupting pregnancy.

At this juncture, I wish to state that while statistics are mathematically correct, still the point of view of the author is usually injected into them, and of necessity they may be in a measure so influenced that their intrinsic value is partly lost. We cannot and should not treat our patients dogmatically. No two cases in medicine act alike. To adopt a general rule and apply it universally eliminates one's personal experience and judgment. Particularly is this true in eclampsia. In our experience we seldom found two cases which acted exactly alike and in which precisely the same form of treatment could be instituted. Therefore to maintain that every case of eclampsia must be treated by a radical surgical operation is just as wrong as to assume that eclampsia must be let alone and treated medically.

How then are we to proceed in the treatment of this condition? Are we to adopt one or the other of the two methods, or are we to individualize our patients and institute treatment accordingly?

I believe that eclampsia is produced by some toxic substance circulating in the maternal blood, the origin of which is most probably in the products of conception. In order to cure the patient we must remove

the cause, and, therefore, pregnancy should be terminated. By the interruption of pregnancy, we in a great majority of cases tend to help accomplish what Nature has already begun to do. It is well known that in a great number of cases of eclampsia, Nature tries to relieve herself of the intoxication by causing labor to set in. In the management of all obstetric conditions there is one underlying principle, namely, that our treatment should as far as possible imitate the natural processes which take place during labor, and any radical departure from the normal will tend to endanger the life of the patient.

Close observation by the experienced obstetrician will disclose the important fact that the fatality of eclampsia depends on the degree of toxicity and not on the presence or number of convulsions. We have seen patients die after a single convulsion, and on the other hand, we have seen recovery take place after twenty and more convulsions.

The cardinal signs and symptoms by which we may judge the degree of toxicity clinically are the quantity of urine excreted, ascertained by catheterization (absence of, small quantity of, or highly bloody urine always points to a grave prognosis); absence of lucid intervals between convulsions, and high pulse-rate. The presence of one or more of these signs bespeaks a grave prognosis. On the other hand, if the quantity of urine excreted is not greatly diminished, with a pulse-rate under 120 and with a more or less clear mental state between convulsions, the prognosis is correspondingly more favorable.

From the foregoing it may be seen that clinically eclampsia may be of varying degrees, and the mode of treatment instituted always depends on the degree of intoxication which we are called on to combat.

During the past six years, in the services of the Jewish Maternity and Lebanon hospitals, I have had the opportunity of observing ninety cases; sixteen patients died, and of this number three died intra partum, shortly after they were brought to the hospital, before treatment could be instituted, thus leaving thirteen cases as a post-delivery mortality, or 15.5 per cent.

When it is realized that the greatest proportion of these were emergency ambulance cases, in charge of midwives or the family physicians, all patients having had a number of convulsions previous to admission to the hospital, I think that the percentage mortality is not unduly high.

In this series of cases all recognized forms of treatment were carried out. The method usually adopted depended on the period of gestation and the rapidity with which delivery had to be terminated, as evidenced by the clinical signs and symptoms. In cases in which labor had already set in, delivery was usually completed by manual dilatation, or by dilating-bags, followed by forceps or breech extraction. Patients in whom the toxemia was apparently mild, having absolutely lucid intervals between convulsions and in whom the pulse-rate was not affected to any degree, were treated by catheter or dilating-bags, in order to have labor set in. Patients in whom eclampsia occurred before the seventh month, with severe toxemia, were delivered by Dührssen incisions. I believe that in this class of cases, high incision of the cervix is the ideal method for delivery.

Delivery by vaginal cesarean section was adopted in all eclamptic patients not in labor, with long and rigid os during the seventh and early part of the eighth months of gestation.

Abdominal cesarean section was performed during the last four or five weeks of pregnancy in primiparas having the severe toxemia, not in labor, with long and rigid cervix. In this class of cases abdominal section has a definitely useful field. While it may add a slight additional risk to the mother, the margin of safety for the child is so great that, to my mind, it justifies this procedure. Vaginal cesarean section in these cases should never be the operation of choice, for the operator may encounter many obstacles which will complicate the operation and which at the same time endanger the life of the child. These patients, in order to have the best show for recovery, must be delivered in a minimum time and with the least possible trauma. This is not readily accomplished by adopting the vaginal route.

The routine medicinal treatment used for controlling the convulsions consisted in large doses of fluidextract of veratrum viride, associated with small doses of nitroglycerin. Morphin in large doses was used in patients who were restless between attacks. If the convulsive seizure was severe and seemed to exhaust the patient, ether was administered. In my experience, no one of these drugs seemed to exert any specific action. Venesection and drawing off from 10 to 16 ounces of blood was resorted to in plethoric patients with high blood-pressure. This procedure tends to relieve the congestion of the viscera and at the same time withdraws a certain amount of toxins from the system.

CONCLUSIONS

The purpose of this paper is primarily to point out the very important fact that the toxemias of pregnancy cannot always be treated by either the radical or the conservative methods, and that the clinical varieties of eclampsia are such that no one method is applicable to all.

While I believe that the uterus should be emptied in all cases of eclampsia, still each case must be individualized in order that the proper procedure may be adopted. Finally, I believe that if an active campaign of education would be instituted among the physicians as well as the public, and attention called to the fact that there is present a definite preeclamptic stage and that there are premonitory symptoms in pernicious vomiting of pregnancy, the mortality and morbidity of the various toxemias of pregnancy could be greatly reduced or even entirely eliminated.

62 West Eighty-Ninth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ILL AND RONGY

DR. ASA B. DAVIS, New York: That which we should strive for is, first, to prevent eclampsia, to avoid the necessity of radical medical or surgical procedures. I believe that our progress in saving these mothers and children will be by close, watchful care of the pregnant women from early pregnancy until after the puerperium is safely over. And to that end I think we all need to recognize, as we are more rapidly recognizing, that the pregnant state is not a simple one, and that at any moment it may become most serious and threatening. For that reason the pregnant woman should receive more careful consideration than is the general custom to-day. We can do much to prevent these severe toxemias by the careful regulation of the patient's life; also, when the complications do arise, by treating them while they are yet simple. Often, in primiparas, we see transitory albuminuria which, left

in that state, amounts to very little; but when casts appear, hyaline and granular, we usually have with that condition an excess of indican, an increase of acidosis, poor elimination. If the patients were treated at this time as we treat them when in a more dangerous condition, we would soon tide them over this threatening period and they would be restored to comparative safety. We can do much by elimination, rest, diet, protection from exposure to cold and from undue nervous strain at such times. Relative to the difference between the toxemias of early pregnancy and those of later pregnancy, we find that in the so-called pernicious vomiting, some patients can be controlled and carried along until these symptoms subside. In other cases, treatment, except emptying the uterus, seems to have no effect on the condition. We have noticed that emptying the uterus in these early cases is not resorted to as readily as in cases in the later stage of pregnancy when convulsions have or have not occurred. It is, therefore, not safe to allow these cases to go to the extreme time, as we do in the later months of pregnancy. The tendency is to be more conservative in the treatment of these toxemias of pregnancy and labor. There are encouraging reports of resort to this conservative method; but I believe that, in the face of active symptoms—an active clinical picture—we must, as has been said, consider each case individually and treat it accordingly, whether that is elimination by every channel of waste. In many cases we are forced to such a process if we are to save our patient.

DR. PHILIP MARVEL, Atlantic City: Two points which have not been brought out are: the importance of observing the hypertension in these cases, and the use of pilocarpin. I think those of you who have followed these cases from their incipiency will agree with me that hypertension is one of the most important persistent symptoms which gives some definite knowledge of the fact that there is in a particular case some pathologic condition growing, so to speak. I believe, as the last speaker stated, that in these cases the pathologic condition is secondary. I also think that eclampsia is undoubtedly one of primary toxemia, whether it be due to the foreign protein matter that is circulating in the maternal blood—as Dr. Rongy has mentioned—or whether it be due to other foreign substances, we are not yet, so far as I know, in a position to give its definite cause; but, be that as it may, I think most of us who have seen a number of these cases, have observed a continuous rising hypertension. Various ways have been suggested for reducing hypertension in other conditions, not all of which are advantageous in eclampsia. I am prepared to say that in two cases I have used a remedy which is worthy of consideration. It is pilocarpin. In the two cases in which I have used pilocarpin, I did so in the dose of 1/50 of a grain three times a day with fair quantities of water, and in both cases it was noticeable that the hypertension began to fall in twenty-four hours. Elimination was very much increased, and the patients both did well. I know not whether this was a mere coincidence, or whether the drug may have had some strong therapeutic influence. In the medical treatment of this condition I think it is well worth our further trial, and I recommend that its possible advantage be kept in mind.

DR. M. H. FUSSELL, Philadelphia: The key-note of the family doctor's procedure in labor cases, as well as in his general work, must be the education of his patients and eternal vigilance in his diagnosis and treatment of them. He must tell his obstetric patient that she must be under his care continually from the time of conception until she is properly dismissed in the puerperium. The care the woman needs, and in which she must be instructed, is to prevent, to recognize, and to cure her toxemia at the onset. The diet of a pregnant woman should be ample in food value, but easily assimilated, and not irritating to the kidneys and the liver, consisting of carbohydrates, fresh vegetables, meat once a day in such proportions as will freely nourish the patient but will not irritate the kidneys and the liver, which need to be fully active in order to take care of the metabolic products dependent on pregnancy, and on which toxemia depends. Exercise should be regulated to be neither so excessive that the woman will be exhausted, nor so slight that there will be a retention of by-products of digestion which will irritate and perhaps make inefficient both the kidneys and liver—for on the efficiency of these two great eliminators depends the freedom from toxic symptoms. Therefore, continuous, routine examination of the urine is absolutely necessary in every pregnant woman. The examination must be made every two weeks at the beginning, and every week later on, in normal cases. If any sign of insufficient action of the kidneys, such as albumin or casts occurs, then a daily examination must invariably be made. Albumin not of renal origin is a common occurrence in the urine of pregnant women; hence when albumin appears a microscopic examination must always be made. The use of the phenolsulphonephthalein test is of great importance. High blood-pressure in pregnant women is of the most serious import, whether or not there is albumin in the urine. The pressure should be taken regularly every two weeks, and later every week. A gradual rise must lead to treatment. The symptoms indicative of toxemia are: headache, indigestion, pain in the epigastrium, edema of the legs, disturbances of vision, drowsiness, unconsciousness and convulsive seizures. When suggestive symptoms occur and when blood-pressure begins to rise, when albumin appears in the urine, the patient must at once be put to bed, diet reduced to milk, and the patient sweated and purged and in severe cases bled from the arm. With care in the use of these potent remedies, many cases will become non-toxic, then the patient can be allowed out of bed, the diet can be gradually increased, and the patient allowed to go about her duties, but such cases need constant watching.

DR. CHARLES S. BACON, Chicago: Every care must be taken of the patient as soon as she shows any sign of toxemia. Many believe in interrupting pregnancy early in cases of pernicious vomiting. That is often an excuse for the interruption of pregnancy and has led to some harm. I have, until quite recently, been opposed to this position. I was influenced first by the great experience of Shauta, who found that it was possible to carry the cases through without interruption of the pregnancy. I have persisted very often in the very serious cases, but recently the results in a number of cases have made me very doubtful about the wisdom of that course. I have found that the toxemia of early pregnancy is often followed by the toxemia of later pregnancy with albuminuria, and finally eclampsia has not infrequently followed the pernicious vomiting. This has led me to believe that in the very serious cases it is probably better not to try too long to carry through the pregnancy without interruption.

DR. JOSEPH B. DELEE, Chicago: Statistics have only a relative value. Whether the statistics regarding the treatment of puerperal eclampsia speak for this, that or the other treatment, makes little difference to the man who is treating the case. The man who has experience in a certain number of cases will be able to draw conclusions as to the best method of treatment regardless of statistics. I therefore feel that the individual experiences of men if they are capable of judging is worth very much more in discussion than statistics. I consider the eclampsia as yet an unknown quantity. We do not know the cause of these toxins which we believe are circulating in the blood and which upset metabolism, neither do we know the chemical nature of these toxins. When we meet a woman suffering from the effects of these toxins we know nothing, therefore, about the nature of her suffering. We do know this, however, that the ultimate cause of her toxemia is the pregnancy. If she were not pregnant she would not be toxic, and, therefore, the quickest and safest way—from that point of view, mind you—of curing this so-called toxemia is to remove the pregnancy. Is rapid delivery more dangerous than the toxemia itself? That is a matter of individual experience and practice. I, therefore, place myself on record in favor of the active treatment of eclampsia. Since we cannot remove the toxemia I believe that I am treating my patient best by removing the pregnancy which is the cause of the toxemia. One other point regarding the treatment of early toxemia of pregnancy: We are still more in the dark regarding the treatment of pernicious vomiting of pregnancy than we are the treatment of eclampsia. I do not always know

when I have curetted the uterus in pernicious vomiting whether I saved the patient's life, or whether it was necessary at all. I have had several cases in which the women have had fever, actual jaundice, when I thought even that I detected a diminution of the area in the liver dulness, when there has been albumin in large amounts, blood, granular and hyaline casts in the urine, when sugar has been present and pentose discovered, when under the influence of purely nervous method of treatment—psychic, you might call it—the woman suddenly spontaneously recovered. Therefore, I feel that there is an element in these cases of early toxemia at least, which is absolutely terra incognita, and that our treatment is more and more empirical.

DR. CHARLES L. BONIFIELD, Cincinnati: Dr. Ill said he thought he had seen a patient die from the influence of veratrum viride. He made another remark afterward with which I could not agree—that veratrum viride was a very dangerous drug. If this were true, I and a number of friends would surely have killed a large number of patients, because we use it frequently. We use it in what the text-books would call very large doses. If I believed a patient to be suffering from eclampsia and she had a high blood-tension and a pulse anything over a hundred, I should not at all hesitate to give her 30 minims of Norwood's tincture, or its equivalent hypodermatically at once, repeating the dose with 10 drops every hour until the pulse came down to 60. I have seen this done so many times with nothing but beneficent results that I cannot believe that veratrum is a very dangerous drug. One other thing I would emphasize. We hear mentioned the use of morphin and veratrum at the same time. They are physiologic antagonists. If you have a patient suffering from veratrum poisoning and become alarmed, give a hypodermatic injection of morphin and she will usually recover in a short time. In and around Cincinnati, where veratrum is largely used, I have never known of a death. Our only guide in the use of the drug is to bring the pulse down to 60. Usually if you get it below 60 the patient will not have a convulsion. The last case I saw of this kind was two weeks ago. When I arrived the family physician had given the patient 60 minims in divided doses. Under my instruction he gave her 20 more. I had the pleasure of seeing her regain consciousness while I remained in the room. I believe in operations. The indication always is to empty the uterus, because the pregnancy is causing the convulsions. We must get rid of it in the way that causes the least shock to the nervous system, because we know from experience that these patients can be thrown into convulsion by a noise or slight trauma. Therefore, some procedure that can be rapidly done under an anesthetic seems to me to be indicated, such as, in the early months, vaginal cesarean section; in the later months, abdominal cesarean section.

DR. EDWARD J. ILL, Newark, N. J.: Concerning Dr. Marvel's suggestion of pilocarpin, we used that years ago and have discarded it. It is apt to produce dangerous symptoms, among them an excessive bronchorrhea. The cases that come to us early are not the dangerous cases. The dangerous cases are those in which you find albuminuria in large quantity to-day while yesterday there was neither albuminuria nor a high blood-pressure, or those in which convulsions occur to-day while three days ago urine and blood-pressure were perfectly normal. Those are the cases which so commonly need a cesarean section. Such cases usually follow a big dinner. My impression is that one of the causes of albuminuria might be found as a result of damaged kidneys from scarlet fever contracted during early life. It certainly has been true in a large number of cases. We are told by one of the speakers that statistics are of use only to the man who is giving them. Commonly, I should say that the man that gives us no statistics either has none or else they are so bad that he does not care to publish them. My experience has been that the pernicious vomiting in pregnancy occurs most commonly with a pernicious doctor, or with one who is too comfortable to exert himself. During thirty-nine years of active practice I have been obliged to induce abortion but twice for pernicious vomiting.

DR. A. J. RONGY, New York: With reference to pernicious vomiting, I have seen four women die because the uterus was not emptied before they reached the fourth month, and possibly many more would have died if pregnancy had not been interrupted. I do not advocate the emptying of the uterus in the early months of pregnancy unless there are definite signs and symptoms of severe toxemia. The same treatment is suggested in late pregnancy. In patients in whom there is a persistent pulse-rate over 120, with emaciation and vomiting regardless of the intake of food, the uterus should be emptied. Even should you carry such patients through four or six months of pregnancy, they may still develop toxemia in the later stages. Simple albuminuria is of no importance, unless it is accompanied by headache and general malaise. The constitutional symptoms accompanying the albuminuria warn us of danger. One of the most important symptoms so far as the toxemia is concerned, is an appreciable increase in blood-pressure. The keynote of the matter lies in the prevention of pernicious vomiting of pregnancy and of eclampsia. We have definite premonitory signs in pernicious vomiting of pregnancy. We have definite signs in the preeclamptic state. Our duty is to educate the general practitioners to give careful attention to these patients.

MOLD FUNGI, STREPTOTHRIX FOERSTERI, RECOVERED FROM THE GASTRIC CONTENTS

CAMP STANLEY, M.D., WASHINGTON, D. C.

The subject of gastric mold is one of great interest because of the absence of authentic information, and the great difference of opinion as to the pathogenicity and the systemic effects of organisms closely associated with the mold fungi. The part which mold fungi and the streptothrix play in producing pathologic conditions of the stomach has been interpreted by clinicians in many ways. It appears to me to be of the utmost importance to determine their relationship to disease. It is not my purpose, however, in this paper to delve into the intricacies of the bacteriologic side of this interesting condition, but simply to outline the work which was done in this case. The following is the case history:

Nov. 3, 1913, Mr. B. was referred to me for treatment. His condition was one of subacid gastric catarrh and spastic constipation. Early history was negative. Physical examination revealed a thin, pale man, aged 36, of deficient muscular development. The lungs were apparently normal. The heart was normal in size and position, with a slight lesion at the aortic valve, the maximum intensity being in the second interspace to the right and not transmitted. Blood examination revealed: red blood-cells, 4,280,000; hemoglobin, 80 per cent.; leukocytes, 8,000. The differential count was normal. The urine showed a faint trace of albumin and no casts; indican was strongly positive; specific gravity was 1.016. Examination of feces revealed a catarrhal stool of offensive odor, mucus strongly positive, and a positive reaction for occult blood on a meat-free diet, undigested food.

The night preceding the morning test breakfast I instructed the patient to eat a light meal consisting of soft eggs, toast and milk and at 7:30 the next morning to take one slice of toast and two cups of hot water. At 8:30 I withdrew this and noticed in the return a flocculent reddish-pink mass about the size of a walnut. At this time it looked as though it might be a piece of gastric mucous membrane, but later under the microscope it showed the typical mold formation of mycelia and spores. Its cultural characteristics are as follows: It grows well aerobically but very poorly anaerobically. On liquefied gelatin it grows slowly, the growth appearing on the surface as honeycombed depressions lined by a fractured chalky-white crusty membrane. A slight brown coloration was imparted to the gelatin just beneath this membrane. On plain and glycerin agar the growth appears as a crumpled or convoluted white

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membrane which later becomes tinged pink and is somewhat moist. On bouillon the growth appears only on the surface and resembles that first seen on the agar-tubes; no coloration is imparted to the fluid. On potato a grayish-white crumpled dry covering with no tendency to spread is seen. In milk, growth takes place only on the surface, and is of a white to pink color; the milk is not coagulated. Microscopically, true branching threads are seen and in old cultures spore-like bodies are distinctly visible within the threads. Motility was not observed. The filaments stain well with methylene blue and by Gram's method. There is no musty odor as is frequently present in other varieties of this group.

To test its pathogenicity to animals, two pigs were injected intraperitoneally and subcutaneously. One pig died on the seventh and the other on the ninth day. Sections from the internal organs were made and nothing was found, showing quite clearly that they died from the toxemia.

I sent a culture to the New York Post-Graduate Laboratories for identification of the species and they suggested that I consult Dr. Charles Thom of the Agricultural Department. This I did and the following is the report of the chief of division of pathology:

You are advised that this organism is one with which we have never previously worked. It appears to belong to the lower order of actinomycetes (Lachner-Sandoval), and as near as we can get to placing it at this time, can only say that it corresponds closely to the *Streptothrix foersteri* (Cohn). Should we be able to place it more definitely from future study we will advise you.

I neglected to say that a blood-culture in this case was negative; the thread test showed only a very faint stain near the cardia; repeated tests were negative.

In closing I wish to thank Medical Inspector E. R. Stitt, U. S. N., Dr. Charles Thom and Dr. J. R. Mohler, chief of the Division of Pathology, Department of Agriculture, for their assistance.

826 Connecticut Avenue, N.-W.

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New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

ARLCO-UREASE.—Arlco-urease is a standardized preparation of the urealytic enzyme obtained from the soy bean, *Soja hispida.*

Actions and Uses.—Arlco-urease decomposes urea into ammonia and carbon dioxide. It is employed in the determination of the amount of urea in the urine, blood and other body fluids.

Dosage.—The procedure consists in treating the urine with urease, drawing the ammonia into fiftieth-normal acid by means of an air current and titrating the residual acid.

Manufactured by the Arlington Chemical Co., Yonkers, N. Y. No U. S. patent. U. S. trademark applied for.

In the preparation of arlco-urease, soy bean meal is treated with water and the aqueous extract filtered. The solution so obtained is precipitated by pouring into acetone, the precipitate washed and dried by desiccation over dehydranis. The dried precipitate is finely ground and standardized by methods reported by Van Slyke and Cullen. (*Proc. Soc. Exper. Biol. and Med.*, Dec. 17, 1913.)

Arlco-urease is a fine, white powder, freely soluble in water, forming an opalescent solution.

If 0.1 Gm. of arlco-urease be dissolved in 1 Cc. of water and the solution added to 5 Cc. of a 1 per cent. solution of pure urea, the mixture should hydrolyze 0.0168 Gm. of urea in fifteen minutes at 25 C. or in correspondingly less time as the temperature approaches 50 C. as a maximum.

UREASE-DUNNING.—Urease-Dunning is a highly potent and standardized preparation of the urealytic enzyme obtained from the soy bean, *Soja hispida.*

Actions and Uses.—In the presence of water urease-Dunning decomposes urea into ammonia and carbon dioxide, resulting in the formation of ammonium carbonate. It is employed in the determination of the amount of urea in the urine, blood and other body-fluids.

Dosage.—For the estimation of urea in urine, it is recommended to determine, with volumetric hydrochloric acid and methyl orange, the alkalinity of a portion of the specimen that has not been treated, and compare this, as to alkalinity, with an equal quantity of the same specimen which has been treated with the enzyme, the difference representing the ammonium carbonate formed by the breaking up of the urea present.

Manufactured by Hynson, Wescott & Co., Baltimore, Md. No U. S. patent or trademark.

Urease-Dunning Tablets.—Each tablet contains 0.025 Gm. of urease, Dunning.

Urease-Dunning, is a fine, almost white powder with little taste or odor; it is soluble in slightly alkaline water and represents the urea-converting enzyme of soy bean in a condition of high potency. It is practically free of the water-soluble proteins, which are precipitated by hydrochloric acid, and of proteins that are insoluble in water. Aqueous solutions deteriorate after standing a few days.

Urease-Dunning, may be assayed as follows: To 5 Cc. of a 2 per cent. solution of urea, in water previously heated to from 38 to 40 C. and 25 mg. of urease-Dunning (one tablet), and keep the mixture at the temperature stated for one hour; then add 0.05 Cc. of methyl orange test solution, and titrate with tenth-normal hydrochloric acid. From 20 to 25 Cc. should be required to neutralize it, equivalent to from 60 to 75 mg. urea.

ELECTRARGOL FOR INJECTION.—This dosage form of an accepted proprietary article has been accepted for inclusion with New and Nonofficial Remedies.

Supplied in the form of ampules, each containing electrargol 10 Cc. in the non-isotonized condition.

STYPSTICK APPLICATORS, ALUM 75 PER CENT.—

This preparation has been accepted for inclusion with the appendix to New and Nonofficial Remedies. Wooden sticks 6½ inches long, tipped with a mixture of alum, 75 per cent., and potassium nitrate, 25 per cent., packed in glass tubes. Each stick is to be used but once.

Prepared by the Antiseptic Supply Co., New York.

Philippine Health Report for Last Quarter 1913.—The report of Victor G. Heiser, Director of Health, for the last quarter of 1913, states that there are now over 60,000 less deaths per annum than in 1905. This reduction occurred almost entirely in the preventable diseases and therefore is a reasonably correct index of the effect of the work of the health authorities. It is said that if the knowledge now available could be effectively applied another 100,000 deaths could be prevented by reducing the rate for tuberculosis, malaria, beriberi and its indirect effects and the intestinal diseases. That the director is not receiving the fullest support during the present governmental administration, as has been hinted before, is intimated when the director says: "The organization which has already brought about a reduction of 60,000 deaths per annum is believed to offer the best hope, if permitted to work along unhampered, of bringing about this further improvement; but in order to achieve any considerable result the cooperation of the entire public is essential." One case of human plague was found during the quarter, but no infected rats. Six cases of cerebrospinal meningitis were found, making twenty in all since the outbreak of the disease. Cholera continued in sporadic form, 104 deaths in 147 cases having occurred in Manila, making a total of 161 cases and 110 deaths since the beginning of the trouble, August 24. The disease also occurred in a number of the provinces, but in each instance there were but few cases, and prompt measures stopped its spread.

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SATURDAY, JULY 11, 1914

SOME FEATURES OF MEDICINE IN BABYLONIA AND ASSYRIA

The successful study of the history of medicine during what Renouard has called the Age of Foundation, including the primitive and sacred, or mystic periods, requires a combination of many talents in those who would examine the original sources of that history. In those early ages the beginnings of medicine were intertwined with a group of sciences, the interpretation of which calls for cyclopedic information and long experience in the domain of ancient learning. In a most interesting address before the Royal Society of Medicine in London, Morris Jastrow, Jr.,[1] of the University of Pennsylvania reviewed some of the features of the medicine of the Babylonians and Assyrians, our knowledge of which is derived almost exclusively from the great library of clay tablets gathered in his palace by King Ashurbanapal of Assyria, who ruled from 668 to 626 B. C. About 30,000 fragments of these tablets, among which are at least 800 that may be placed in the category of medical texts, were discovered in 1849 near the site of Nineveh and are now housed in the British Museum.

No means are available at present by which the age of the medical tablets from which the scribes of the Assyrian king made their copy may be determined. As it is characteristic in general of the literary productions of the ancient Orient that the old is preserved intermingled with the new, it is highly probable that in these medical texts we have the accumulated experience of the past combined with the science of the age in which the compilation was made. Jastrow estimates roughly that the period of the Assyrian records which contain the treatment of disease may be placed at least 2000 B. C., thus far antedating the centuries in which the name of Hippocrates (460 B. C.) attained its earliest fame. This fact emphasizes the contention made by medical historians that the origin of medicine must have been nearly contemporaneous with the beginnings of civilization.

1. Jastrow, Jr., Morris: The Medicine of the Babylonians and Assyrians, Proc. Roy. Soc. Med., 1914, vii, Section of the History of Med., p. 109.

Medicine began in an age of wonder. So long as disease was regarded as the manifestation of supernatural powers, it is only natural that crude and bizarre notions should have arisen with respect to the attitude to be taken by man toward the "celestial creatures of his handiwork." Penetrating the veil of the mystic, real human characteristics frequently make their appearance and appeal to us with a decidedly modern force. Jastrow states that a famous code dating from about 1950 B. C. includes, in the portion devoted to injuries, the laws with regard to fees for surgical operations, as well as the fines for fatal errors on the part of the surgeon. The fee in the case of a successful operation is regulated according to the station occupied by the patient. The ordinary freeman pays 10 shekels for a successful operation on the eye or elsewhere, while a member of the ruling class gets a reduction of 50 per cent.; and in case the operation is performed on a slave the owner pays 2 shekels. For the setting of a bone or the cure of some internal injury the fee is 5 and 3 shekels, respectively. The punishment for the failure of an operation, on the principle that the physician had no right to take the risk, similarly varies according to the position of the patient. If a slave dies as a result of the operation, the surgeon is to replace the slave by another; if the slave loses an eye the physician must pay one-half the value of the slave. If, however, it is a freeman who dies or loses an eye through the operation, the procedure is quite simple — the physician's hand is cut off. The beginnings of specialization in surgery are also indicated at this early period; for the code distinguishes between the ordinary surgeon and the veterinary, the latter being spoken of as the "cow- and sheep-healer" to whom penalties of failure likewise pertain. The physician, as surgeon, was sharply differentiated from the healer of diseases, reminding one of the custom of distinction prevailing in Great Britain, which may, in some of its aspects, be a survival from a very early period.

As in primitive medicine elsewhere, the Babylonian-Assyrian treatment was never dissociated from incantations. If evil spirits were the causes of disease, obviously they must be propitiated. A cure, therefore, involved driving the demon out of the body, either by force or by coaxing. Dr. Jastrow naively remarks that incantations as a means to this end are therefore to be viewed as the antitoxins of primitive medicine, acting primarily on the demons, and merely as a secondary result curing the patient. The introduction of a number of accessories in medical treatment has an incidental origin. Through experience it was found that in certain common diseases such as indigestion, diarrhea, constipation, colds, headaches and fevers, certain articles of food and certain herbs, plants, seeds and juices were beneficial. Primitive logic, says Jastrow, concluded that what was good for man must be

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bad for the demon, and accordingly the remedies were used as helpful accessories to the powerful incantation formulas, and were symbolically introduced in the ritual which accompanied the direct medical treatment of disease. This aspect of magic rites helps us to understand another phase of early medicine, some features of which have been preserved almost to the present day — the custom of administering concoctions and mixtures that are primarily nasty and ill-smelling. Such materials as the feces and urine of man and animals as well as all sorts of decaying matter were employed.[2] Doubtless it was hoped originally to disgust the evil spirits by foul odors and drive them away. The priests, being quick to incorporate in religious practices the popular medical experience of the day, have rendered the bond between incantation rites and medical treatment indissoluble for all time.

Precisely as incantations and the allied practices were resorted to when the evil had come, divination was employed to forestall the future. It was the forerunner of preventive medicine. Thus came about the inspection of the liver in a sacrificial animal, the observation of the young at birth, etc. Indirectly such procedures acted as a real stimulus to the study of anatomy and physiology, both normal and abnormal; and in the early Assyrian periods this was not confined to animals.

Aside from the magic ritual the medical literature of Babylonia-Assyria contains more specifically therapeutic advice, some of which may be mentioned briefly. The use of licorice root and of salts in stomach disorders is by no means irrational. Some of the measures to alter or promote the circulation are rather drastic from the point of view of the patient. "If a man has stomach pain let that man sit on his feet and have boiling juice of sikruti cassia poured over him and he will recover." Another prescription reads: "Let him kneel on his feet and let cold water flow over his head." Again, "Place his head downwards and his feet up, strike his cheek forcibly, rub him violently, say to his stomach 'Be good'; with the left thumb manipulate his buttocks fourteen times, manipulate his head fourteen times, and roll him on the ground." The words of admonition to the stomach sound like the psychic healing of to-day, and the manipulations of the body presage massage and other methods of modern physical therapy. Nor was the ancient art of dispensing the drugs devoid of a recognition of the importance of palatability; for we are told in some cases of the alternatives of taking the medicine in wine or water. Over one hundred drugs are included in the medical texts thus far published relative to this early period, and the list will become larger when the means of identifying many of the ancient names are afforded. Familiar names appear everywhere: mint, licorice, caraway, cassia, mustard, colocynth, anise — to mention only a few of them. Elaborate recommendations for their use are furnished in the cuneiform texts. Polypharmacy was common even among the ancients. One prescription includes eight distinct drugs for heart-disease; another, six for jaundice. Even dietotherapy finds a place in this early system of medicine.

Human nature appears to have been much the same in all ages. Dr. Jastrow says that the Babylonian physician of old included the old magical rite in his library copy as a remedy to be resorted to in the last instance; and this reminds us that even at present it is not uncommon for the quack, the herb-doctor and the patent-medicine man, who may be regarded as the modern representatives of the old Babylonian exorcisers, to be appealed to by patients in the moment of despair, when rational remedies seemed incapable of affording relief.

2. Compare Paullini, K. F.: Drek-Apotheke, wie nämlich mit Koth und Urin die meisten Krankheiten und Schäden glücklich geheilt worden, 1714.

THE DIAGNOSIS AND TRANSMISSION OF PLAGUE

The outbreak of plague in Manila in 1912 aroused renewed attention to the methods of diagnosis applicable to this infection. Dr. Schöbl of the Biological Laboratory at the Bureau of Science of the Philippine Islands tested some of these methods.[1] The diagnosis of plague could be safely made in the majority of cases from a microscopic examination of the liquid aspirated from the bubo. Out of fifteen patients examined, fourteen gave positive blood-cultures. The importance of this mode of examination in diagnosis is evident from the fact that a positive blood-culture was obtained in practically every patient examined in the febrile stage of the disease, even when buboes or signs of pulmonary involvement had not been detected clinically. It was also found that *Bacillus pestis* may be detected in the circulating blood of patients, even those who subsequently recover. The period of time during which the micro-organism circulates in the blood-stream is evidently short and irregular. In agreement with the Indian commission, the occasional early occurrence of plague bacilli in the circulation was observed. The possibility of detecting the bacillus in this way increases in proportion with the quantity of blood used for culture. The best chance to recover the organisms from this fluid seems to be in the stage of high fever and general prostration.

Dr. Schöbl remarks that in consideration of the ephemeral character of the septicemic stage of plague, as evidenced by repeated blood-cultures from patients who recovered, one can hardly avoid the impression that a certain degree of septicemia exists in every case

1. Schöbl, O.: Bacteriological Observations Made During the Outbreak of Plague in Manila in 1912, Philippine Jour. Sc., Trop. Med., 1913, viii, 409.

of plague. The septicemia may be of an irregular and fluctuating type; and mixed infection (with streptococcus or pneumococcus) may be encountered.

The agglutination test is regarded by Schöbl as of no value for the diagnosis of plague, as it was found positive in convalescents only. Although the technical difficulties of carrying out the reaction have been reduced,[2] positive agglutination of bacilli by the patient's serum cannot be obtained in the first week of the disease. Therefore, the isolation of plague bacilli from the body of the patient is still the only quick and safe method of plague diagnosis.

With respect to the possibilities of transmitting the plague directly, the presence of numerous plague bacilli in comparatively insignificant skin lesions during the life of the patient is noteworthy. Furthermore, the fact that a patient without any apparent bubo, who is not so sick as to be detained from his daily occupation, may expectorate large numbers of plague bacilli, is of great importance with regard to the communication of the disease. Quoting the Manila investigator, it is obvious that the last-mentioned condition might, and very likely does, give rise to an epidemic of pneumonic plague if the atmospheric and sanitary conditions are favorable.[3]

CHRONIC CONSTIPATION

To recur to a subject so trite as that of chronic constipation may appear to be an unpardonable editorial sin. Yet every day brings to the routine of the practitioner real or imagined cases which deserve to be managed with intelligence and success. It is, after all, not always the rare and the unique which offer to the physician the greatest opportunity for useful service. There are baffling problems constantly with us; and many a common disease like measles or tuberculosis, doing damage to thousands, deserves far more to be kept in the foreground of professional interest than does the occasional medical anomaly that is always likely to divert attention from the more persistent dangers.

We do not mean by this that new "cures" need to be devised from month to month for familiar difficulties, though in truth a satisfactory cure is the goal which practical medicine must strive to reach. What is, perhaps, needed to-day far more than hasty suggestions and novel therapeutic hints is a critical attitude and a thoughtful analysis of present-day treatment. The "busy practitioner"—to use a phrase made to excuse much that is inexcusable—denies himself the privilege, or fails to enforce on himself the duty, of seriously reviewing the situations which he is called on to confront. He too often neglects to derive the inestimable advantage which an extensive experience of repeated successes and failures in the same field ought to afford. To the real physician every case becomes a new problem rather than a recurrence of an old experience.

These reflections have been awakened by a recent lecture by Einhorn[1] on chronic constipation and its treatment. He protests, for example, against making a fetish of the theory of auto-intoxication. Many an individual has been subject to unnecessary nervous strain by the ever-present fear of some indefinable poisoning conceived as certain to follow an impending constipation. Einhorn quotes the contentions of the clinician Dunin in Warsaw that the familiar untoward symptoms and nervous phenomena are not necessarily the result of constipation, but may actually be the cause of it. Sedatives like bromids are known to relieve in some of these cases. A good indication of the fallacy of charging intestinal intoxication to constipation is seen in the fact that the use of opiates may result in the constipation without consequent headaches, etc.— the expected evidence of alimentary toxicity.

Einhorn cannot agree with the contentions of Schmidt that chronic constipation is the outcome of unusually perfect utilization of the diet. Indeed, it is quite as reasonable to adopt a reversed hypothesis and insist that, because of the longer delay of the alimentary residues in the gastro-intestinal canal, the absorption has an opportunity to become more complete. Here again it is easy to confound cause and effect.

Operative interference has of late been suggested by Arbuthnot Lane and others as a palliative in chronic constipation. Lane's operation and the auto-intoxication hypothesis go hand in hand. Neither of them finds unqualified or hearty favor from those who emphasize the possibilities of rational physical and dietetic therapy. Surgical procedures are eminently justified when anatomic defects are present. The necessity for them in what is called auto-intoxication has, however, been seriously questioned.[2]

Too little attention has been paid to habit and the influence of social conditions on the inherent tendency to frequent and prompt defecation. Even so essential and physiologic a process as this is not infrequently consciously neglected by so-called culture-man and especially by the society woman; or it is not infrequently performed incompletely because carried out in time snatched from some absorbing occupation. The careful study of each patient, the investigation of his habits and temperament, the preaching of the doctrines of rational living, the supplementing of this with appropriate measures of diet and physical con-

2. Strong, R. P.: Philippine Jour. Sc., Trop. Med. (*B*), 1907, ii, 155. Strong, R. P., and Teague, O.: ibid., 1912, vii, 194.
3. Atmospheric Temperature and Pneumonic Plague, editorial, The Journal A. M. A., March 7, 1914, p. 779.

1. Einhorn, M.: Ueber chronische Stuhlverstopfung und ihre Behandlung, Ztschr. f. diätet. u. physik. Therap., 1914, xviii, 257.
2. Auto-Intoxication Again Assailed, editorial, The Journal A. M. A., Feb. 28, 1914, p. 701.

duct — in other words, helpful hygienic criticism and frank education — these are in a large majority of cases of chronic constipation the guides to successful practice and human happiness, both of which the physician tries to cultivate.

NEW FACTS ABOUT HUNGER

The fact that the sensation of hunger is attended with pronounced characteristic contractions of the empty stomach is now beyond dispute. We have already[1] referred to the various ways in which these motor phenomena associated with the "cravings of hunger" may be modified or inhibited. The primary stimulus to the hunger contractions is not to be sought in extrinsic nerves, for the empty stomach completely isolated from the central nervous system has shown typical contractions. These are therefore, in their origin, independent of the central nervous system, and appear to depend on some automatic mechanism in the stomach wall, though the fact of the intrinsic initiation of the gastric movements by no means excludes the occurrence of regulatory impulses from outside of the organ. Indeed, it has now been clearly demonstrated that inhibitory reflexes readily and frequently play on the gastric contractions, checking them and simultaneously modifying the pangs of hunger with which they are accompanied. Hunger is inhibited by tasting or chewing palatable foods; in some individuals the sight and smell of food may produce the same result.

The question at once arises as to the relative participation of various departments of the nervous system in the influences that modify the gastric movements and the sensation of hunger. Some data on this point are already available.[2] It has been shown that the nervous mechanism involves both local centers (Auerbach's plexus in the stomach-wall) and the central nervous system. Stimulation of the sensory nerves in the mouth, esophagus and stomach mucosa inhibits the hunger mechanism by way of the splanchnic nerves as well as through the Auerbach plexus. It has also been shown that practically all stimuli that act on the gastric hunger mechanism via the central nervous system cause inhibition mainly through the splanchnic nerves. This is true, for example, in the case of the sight or smell of food on the part of dogs in hunger.

When the vagus influences are excluded the tone of the stomach is greatly lowered.[3] Evidently, then, these nerves are concerned with the maintenance of this tone, and it becomes of importance to learn what influences inhibit the gastric hunger mechanism by way of the splanchnic nerves, already referred to, and what perchance by depression of the vagus tone. A. J. Carlson[2] of the University of Chicago has continued his work in this field of the physiology of the stomach by investigating the influence of the factors or conditions commonly associated with the lowering of the tonus of the central nervous system and the skeletal muscles; such as sleep, stimulation of the cutaneous nerve-endings for heat, excessive muscular activity, as well as the factors that increase the skeletal neuromuscular tonus, such as stimulation of the nerve-endings for cold in the skin, moderate muscular activity, seeing and smelling palatable food, etc. Moderate muscular activity (walking) has no direct influence on the gastric hunger mechanism. Intense muscular activity (running) inhibits the hunger mechanism in direct proportion to the intensity and duration of the exercise. Feeble hunger contractions may continue during moderate running. There appears to be some increase in the gastric tonus and hunger contractions as an after-effect of moderate exercise. Stimulation of the nerve-endings for cold in the skin does not affect the vagogastric tone apparatus. If the stimulation is of sufficient intensity it induces (especially in man) a temporary inhibition of the gastric hunger contractions via the splanchnic nerves. A similar inhibition is induced by strong stimulation of the cutaneous nerve-endings for warmth. There is a distinct increase in the gastric tonus and hunger contractions as an after-effect of prolonged and intense stimulation of the nerve-endings for cold in the skin. It is therefore clear that in general the nervous impulses that give rise to the sensation of cold and induce increased neuromuscular tone have no direct action on the vagogastric tonus centers.

During sleep there is decreased activity of the central nervous system in general, decreased tension of the skeletal muscles, of the musculature of the blood-vessels, at least in certain parts of the vascular system, of the urinary bladder, etc.; in short, a lowered activity of all the neuromuscular mechanisms so far investigated. One might have expected that so far as the tone of the empty stomach depends on a central influence by way of the vagi, the gastric tone and hunger contractions should be diminished during sleep. Instead of being depressed in sleep, however, the hunger contractions continue with the same vigor as during the waking state, and in many instances with increased vigor. In man, intellectual processes (attention, reading, figuring, arguing) have no distinct influence on the course of the hunger periods. Actual anxiety causes temporary inhibition (probably through the splanchnics).

It is a common belief that smoking shortly before a meal leads to depression of hunger and appetite. The

1. The Call of the Empty Stomach, editorial, THE JOURNAL A. M. A., Oct. 4, 1913, p. 1300; The Voracity of Certain Diabetics, ibid., Feb. 21, 1914, p. 621.

2. Carlson, A. J.: Contributions to the Physiology of the Stomach, XV. The Nervous Control of the Gastric Hunger Mechanism (Man, Dog), Am. Jour. Physiol., 1914, xxxiv, 155.

3. Carlson, A. J.: Contributions to the Physiology of the Stomach, VI. A Study of the Mechanism of the Hunger Contractions of the Empty Stomach by Experiments on Dogs, Am. Jour. Physiol., 1913, xxxii, 369.

correctness of this has been demonstrated by Carlson.[4] The explanation is probably to be found in the stimulation of the sensory nerve-endings in the mouth—a process known to inhibit the gastric hunger contractions in proportion to the intensity of the stimulus. Smoking stimulates the nerve-endings in the mouth in varying degrees according to the kind of tobacco used. Smoking frequently involves stimulation of nerve-endings in the gastric mucosa owing to the swallowing of saliva containing nicotin, oils, tannic acid, and probably other irritating substances.

Carlson remarks that the observations made by him seem incapable of any other interpretation than that the vagogastric tone apparatus, so far as it concerns the empty stomach, occupies a unique and physiologically isolated position, in the way of nervous control, while the inhibitory apparatus via the splanchnic nerves is readily influenced by central and reflex processes. The biologic significance of this exceptional and unique isolation of the tonus apparatus of the hunger mechanism probably lies in the importance of the hunger mechanism being "regulated on its positive side primarily by the state of nutrition, that is, through the blood, rather than by the fleeting changes in the nervous system."

Current Comment

SOME PHENOMENA DUE TO MAGNESIUM SALTS

The enthusiasm which frequently attends the introduction of new methods in therapy, or new devices and procedures in surgical and other fields of technic, sometimes causes the shortcomings and possible limitations of the novelties to be overlooked. A new product or process may be heralded with laudations of its accomplishments. Hopes of unexpected advantages to be reaped from the application of a promising discovery are awakened, only to be shattered or modified by some subsequent finding of unsuspected difficulties or unannounced defects. Such expectations and disappointments are familiar to all practitioners of medicine. A promising sign which bears the stamp of an age of scientific criticism is that innovations in medical and surgical practice are being controlled more rigidly, criticized more freely and subjected to severer tests than ever before. The promoter of new methods can no longer afford to risk his reputation on the chance of accidental success. Every requirement set by the best contemporary standards of scientific merit must be met and the outcome announced boldly and frankly. To illustrate this we may refer to a recent experience of Dr. Charles H. Peck[1] of the Roosevelt Hospital in New York, in a series of five cases observed by Dr. Meltzer and himself after operation under magnesium sulphate-ether anesthesia (Meltzer's method). In three cases hyaline casts, which completely disappeared after forty-eight hours, were found in the urine. In one of the three a faint trace of albumin occurred; in the other two, none. In two cases hyaline and granular casts and a trace of albumin were found, persisting in one for six days, and in one for two days or more, the urine becoming normal on the fifth day. In none of the cases was there any later evidence of kidney irritation. In all, magnesium could be demonstrated in the urine for several days. No casts were present in the urine before operation in any case. This report led to a prompt further experimental investigation of the matter in Dr. Meltzer's laboratory at the Rockefeller Institute for Medical Research.[2] Epsom salt in sublethal doses, with and without ether by insufflation, was given to dogs intramuscularly and intravenously. In all, many hyaline casts appeared in the urine. They were most abundant from three to six hours after the injection and disappeared in twenty-four or at most forty-eight hours. No epithelial or granular casts were found and no measurable albuminuria occurred. Ether alone did not produce casts, and ether and magnesium produced no more than magnesium alone. In one experiment, magnesium chlorid gave the same results as the sulphate. The essential point is that hyaline casts in large numbers can be produced in dogs at will by injections of magnesium salts. Epithelial and granular casts and albuminuria do not occur, and the appearance of the hyaline casts is only temporary. In this connection it seems desirable to point out that, contrary to the generally accepted view, magnesium salts may be rapidly absorbed from the intestines, according to recent observations of Auer and Meltzer.[3] In view of their experiments, these investigators conclude that the method of injecting magnesium salts into the small intestines after laparotomies, as recommended by McCosh and practiced by some surgeons, contains an element of considerable danger.

PUBLIC HEALTH IN IOWA CITIES

Much of the discussion concerning public health conditions, whether in the nation, state or municipality, is necessarily general in character, owing to the lack of exact information regarding details. Any contribution to our knowledge of existing conditions is therefore of value. In the March issue of the *Journal of the Iowa State Medical Society* appears a report on a survey of public health work of twenty-seven Iowa cities and towns, representing a total population of 197,310. The total amount expended for public health in the twenty-seven cities was $20,950, an average of $779 per city a year, and a total per capita expenditure of 0.106 cent. In only three cities, Cedar Rapids, Burlington and Oskaloosa, did the expenditure for public health exceed 10 cents per capita a year. In

4. Carlson, A. J., and Lewis, J. H.: Contributions to the Physiology of the Stomach, XIV. The Influence of Smoking and of Pressure on the Abdomen (Constriction of the Belt) on the Gastric Hunger Contractions, Am. Jour. Physiol., 1914, xxxiv, 149.

1. Peck, Charles H.: The Occurrence of Casts in the Urine Following Magnesium Sulphate-Ether Anesthesia (Meltzer), Proc. Soc. Exper. Biol. and Med., 1914, xi, 103.

2. Gates, F. L.: The Experimental Production of Hyaline Casts by Injections of Magnesium Salts, Proc. Soc. Exper. Biol. and Med., 1914, xi, 102.

3. Auer, J., and Meltzer, S. J.: The Fatal Action of Magnesium Salts by Absorption from the Intestines and the Resuscitation by Calcium, Proc. Soc. Exper. Biol. and Med., 1914, xi, 95.

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five cities, Charles City, Carroll, Sheldon, Indianola and Harlan, the public health expenditure could be estimated only in mills, while one city of 2,500 inhabitants — Jefferson — expended no money at all for this purpose. Burlington pays its health officer a salary of $1,300 a year, Oskaloosa pays $1,200, Ottumwa, $750, Cedar Rapids, $720 and Waterloo and Muscatine pay $600 each. In Charles City, Knoxville, Algona, Jefferson and Lake City, the health officer receives no compensation whatever. In Shenandoah and Osceola the health officer is allowed fees for services rendered, while the other cities and towns pay from $25 to $150 a year for public-health work. Only one city, Oskaloosa, has a whole-time health officer. In five towns medical inspection of schoolchildren is one of the duties of the health officer. Two cities, Oskaloosa and Boone, have municipal laboratories. If the condition of birth and death registration in Iowa were such as to permit a comparison over a long period of time, between the death-rate in those cities which have no health organization and the death-rate in those which have even an inadequate one, the value of the facts elicited by this survey would be greatly increased. Unfortunately, Iowa is not in the registration area and has no modern system of recording births and deaths. The only conclusion that can be drawn from the report is that the amount of attention given and money expended for municipal health-control in Iowa is far too small to secure the desired result, namely, the reduction of the death-rate and the prevention of controllable disease.

A WILLING SCAPEGOAT

Since THE JOURNAL instituted its educational campaign for the enlightenment of the public against frauds in medicine, it has become fashionable for every quack and "patent medicine" faker who is haled into court, to charge that the American Medical Association is behind his prosecution. Such charges, of course, are without foundation. The duty of the American Medical Association is done when it has turned the bright light of investigation and publicity on the evils of quackery. It is nevertheless true that, nowadays, there is hardly a case involving the prosecution of a quack or a manufacturer of fraudulent proprietary remedies in which the American Medical Association is not charged with having set the machinery of the law in motion. To instance one example: A few weeks ago, two quacks, August Kroening and B. J. Chenoski, who had operated in Iowa for several months under the firm name of the "Des Moines Specialists," were fined $1,000 and $500 respectively, for using the mails to defraud. According to the Des Moines newspapers, one of the attorneys for these fakers asked Postoffice Inspector Caine, who had caused their indictment, if the American Medical Association were not back of the prosecution, and if the Association had not offered him a reward for securing a conviction. Such insinuations are made for no other purpose than that of prejudicing the jury. Having no basis in fact, they are, necessarily, not followed up by those making them. Kroening and Chenoski were found guilty and Judge Smith McPherson of the federal court in assessing the fines is quoted, by the newspaper which reported the case, as saying:

> The charge has been made but no evidence presented in substantiation of the statement that the American Medical Association had influenced the federal officers in prosecuting these men. I do not know whether it is true, but if it is, the Association is to be commended, likewise everyone else who assisted in exposing their methods and bringing them to justice.

While THE JOURNAL heartily agrees with Judge McPherson's sentiments, it has to admit that the American Medical Association had no hand whatever in bringing these men to justice — at least directly. THE JOURNAL, in its issue of June 19, 1913, exposed the methods of the "Known Doctors" and the concern's promoter, B. J. Chenoski. Possibly this publicity had something to do with the authorities taking action against Chenoski and his accomplice, Kroening. Certain it is, that this very publicity sooner or later will make quackery less profitable and popular; for of all frauds perpetrated on the public, medical frauds can stand publicity least.

ASPHALT PAVING AND HEALTH

By some philosophers the earth has been conceived of as a single living organism which lives its own life distinct from the living beings which inhabit it. Some such idea seems to possess Stérian,[1] who warns against the increasing practice of covering the surface of the earth with an impermeable covering of asphalt as is being done by the larger cities. Stérian makes four counts in his indictment of asphalt pavements: 1. They create a tendency to unforeseen excavations from the accumulation of subterranean gases which find no outlet. 2. The roots of plants, especially trees, are surrounded by an atmosphere deprived of nitrogen which plant life needs and ordinarily obtains from the penetration of the outer air through the porous earth. 3. The pavement, not permitting the escape of polluted water, favors putrefaction and renders the lower strata of the atmosphere unfit to breathe. 4. Such pavements favor insolation. Stérian's article is interesting but not convincing. Possibly the fact that only a small proportion of the earth's surface is covered by an impermeable coating has prevented these disadvantages from making themselves unpleasantly manifest. The collection of subterranean gases so as to cause inconvenience is certainly not a common experience. The danger from the passage of gas from leaky gas-mains into houses is of importance, but Stérian does not mention it. The effect on vegetation appears to be real and should be obviated by securing open grass-plots around trees. The objection to asphalt paving because it pollutes the air is of minor importance, because, despite the objection of Stérian, asphalt is one of the most easily cleaned of all pavements. While in our opinion the objections of Stérian need not cause the residents of the boulevards to move to unpaved streets, they indicate the desirability of reliable information on the disadvantages as well as the advantages of modern advances in city building

1. Stérian: Presse méd., June 17 1914, p. 701.

Medical News

CALIFORNIA

Personal.—Dr. Fletcher G. Sanborn, Los Angeles, has been placed in charge of the new hospital of the Packers' Association at Larson Bay, U. Y. P. H., P. O., Alaska.——Dr. George W. Brown has been appointed oculist and aurist of the United States Pension Bureau, Los Angeles.——Dr. Frederick C. Gerlach has succeeded Dr. David A. Beattie as a member of the Board of Health of San Jose.——Dr. Bradford Woodbridge, Roseville, is reported to be critically ill in San Francisco, as a result of a runaway accident.

Fresno will Build Open-Air Schools.—The Board of Education of Fresno has announced its building policy, which contemplates the purchase of entire blocks for schools, with the idea of having each school located at the east end of the block. The buildings are to be of the open-air type, a solid wall of windows on one side and an open-air corridor with a western exposure. The city of Fresno recently made an appropriation of $450,000, of which $350,000 is to be devoted to the building of schools and $100,000 to the purchase of sites for the same.

COLORADO

New Officers.—Colorado Springs Clinical Club, May 27: president, Dr. Alexander C. Magruder; secretary-treasurer, Dr. Elmer Timmons.

Personal.—Dr. A. Hart Goodloe, Canon City, has been provisionally appointed physician to the state penitentiary, vice Dr. Thomas D. Palmer, deceased.——Dr. Edward F. Lake, Denver, who has been under treatment for cancer in Baltimore, has returned home.

CONNECTICUT

Centennial Dinner Alumni.—The Alumni Association of Yale Medical School held a dinner at the University Dining Hall, June 15, 1914, in commemoration of the one hundredth anniversary of that institution. A decorative menu was prepared containing portraits of the faculty. Addresses were delivered by many of the faculty of both the medical college and university. Dr. William H. Carmalt was toastmaster.

Provisional Gift of Hospital to Town.—Commodore E. C. Benedict has promised to give the Greenwich Medical Society a present of a hospital for the town of Greenwich, to cost $125,000, as a thankoffering for the recovery of his wife from a severe illness. This is conditional on the town giving up its rival hospitals: one 3 miles from the village, known as the General Hospital, and the other in the village known as the Greenwich Hospital. It is proposed to convert the General Hospital into an isolation hospital and the Greenwich Hospital into a private institution.

ILLINOIS

County Tuberculosis Sanatorium.—The new tuberculosis sanatorium for La Salle County is to be erected directly west of the men's ward of the infirmary, facing the park leading into the grounds. Work on the building, which is to cost about $3,000, will be commenced immediately.

Site for Epileptic Colony Purchased.—On June 30, the state of Illinois purchased 1,054 acres of land near Dixon, for which $216.40 per acre was paid. This will be the site of the state colony for epileptics, for which $500,000 has been appropriated. The work of erection of the building will soon be inaugurated.

Personal.—Dr. and Mrs. Louis Becker, Knoxville, have sailed for Europe.——Dr. George L. Eyster, Rock Island, while working on his automobile, was severely burned by gasoline.——Dr. R. Carl Dienst, Aurora, has been appointed surgeon and laboratory physician to the Marconi Wireless Telegraph Company, with headquarters at Mashall, Cal.

Chicago

Personal.—Drs. Isaac A. Abt and family, Willis O. Nance, Franklin H. Martin and Raymond W. McNealy have sailed for Europe.——Dr. Robert P. Preble had the honorary degree of M.A. conferred on him by the University of Michigan.——Dr. C. O. Schlaack, ambulance surgeon of the Des Plaines Street Station, was injured in a collision between the ambulance and an automobile, June 21.——Fire in the office of Dr. Alexander L. Blackwood, July 2, did damage amounting to $2,000.

Alienists and Neurologists to Meet.—The second annual meeting of alienists and neurologists, under the auspices of the Chicago Medical Society, will be held at the Hotel La Salle, July 13-17. Dr. L. Harrison Mettler is chairman and Dr. William T. Mefford, secretary, of the committee on arrangements. An elaborate program has been prepared, and a large attendance is expected. All meetings will be held at the Hotel La Salle, with the exception of the session of the morning of July 15, which will be held at the Psychopathic Hospital, Harrison and Wood streets.

KANSAS

Personal.—Dr. H. H. Keith, for many years coroner of Shawnee County, is reported to be seriously ill at St. Francis' Hospital, Topeka.——Dr. Walter J. Nichols, Pittsburg, was assaulted and robbed, June 26, near Frontenac.——Dr. O. W. Hughes, Jewell, has retired from practice on account of failing health.

Results of Increased Requirements.—The effect of the increased entrance requirements and more rigid curricula has been demonstrated by the decrease in the number of graduates who have applied to take the examination for license to practice in the state. At the last examination held in Kansas City, June 9, only twenty-four applicants appeared.

Hospital Dedicated.—St. John's Hospital, Salina, which has been erected at a cost of $110,000, was formally dedicated June 28. Dr. John W. Perkins, Kansas City, Mo., was selected as chief of staff of the institution, and the following staff has been appointed: consulting staff, Drs. Winfield S. Harvey, James R. Crawford, James W. Jenney, William H. Winterbotham, Joseph E. Miller and Wilson R. Priest, Concordia; surgeons, Drs. George Seitz, William E. Mowery, John K. Harvey, John D. Riddell and Louis O. Nordstrom; physicians, Drs. James A. Simpson, Charles M. Jenney, Jonathan H. Winterbotham, Howard N. Moses and Oman R. Brittain; obstetrics, Drs. James A. Simpson, Jessie Wheeler and Edgar J. Lutz; pathologists, Drs. Howard N. Moses and Earl G. Padfield; eye and ear, Drs. Carroll D. Armstrong and Andrew G. Anderson; nose and throat, Drs. John W. Simmons and Manuel J. Brown; neurologist, Dr. Oliver D. Walker; x-ray, Dr. Oman R. Brittain; skin diseases, Dr. John W. Neptune; anesthetist, Dr. Earl G. Padfield, and genito-urinary diseases, Dr. Melcher G. Cockey.

LOUSIANA

Loving-Cup for Dr. Dowling.—The State Pharmaceutical Association at its meeting in Shreveport, presented Dr. Oscar Dowling with a silver loving-cup in recognition of his services as president of the State Board of Health.

Detained at Quarantine.—The United Fruit Company's steamer *Cartago*, from Havana, which arrived at New Orleans, June 25, was detained in quarantine until the nature of a case of fever among its passengers could be ascertained. The passenger embarked at Colon, and was taken from the steamer at Havana.

New Medical Journal.—The *Pan-American Surgical and Medical Journal* appeared June 27. It is the official organ of the Louisiana State Medical Society, and has the following staff: editors in chief, Drs. Waldemar T. Richards and Adolph O. Hoefeld; assistant editor, Dr. Merrick W. Swords, and editorial representative for the state society, Dr. Laurence R. De Buys. The first issue of the journal presents a very creditable appearance. It contains much matter of merit. It is proposed to cater to Central American readers by having a portion of the journal printed in Spanish.

MARYLAND

Health Wardens Named.—In accordance with the provisions in the law passed by the last legislature, Maryland has been divided into ten sanitary districts by the State Board of Health. Over each of these districts a physician will be appointed who will be responsible for the enforcement and general health conditions in his territory. The four following health wardens have been appointed: District No. 1, Allegany and Garrett counties, Dr. Francis E. Harrington, Cumberland; District No. 3, Carroll, Howard and Montgomery counties, Dr. William C. Stone, Ellicott City; District No. 4, Baltimore County, Dr. Josiah S. Bowen, Washington; District No. 9, Talbot and Dorchester counties, Dr. Edgar A. Jones, Cambridge. Following the appointments of the four wardens, the board ordered an immediate survey to be made of Dorchester County. The work is to be done under the auspices of the County Medical Society of which Dr. Guy

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Steele, Cambridge, is president. At the request of Dr. John Fulton, the State Health Officer, Surgeon-General Rupert Blue of the United States Health Department has detailed Dr. Leslie L. Lumsden and a number of his assistants to help. Dr. Fulton, with Dr. Clifford Woodruff and Richard B. Norment, of the State Health Department, will also take part in the survey. It is proposed that every house in the county be visited and health conditions examined. Many meetings throughout the county are to be held at which there will be talks on matters of sanitation illustrated with stereopticon and moving pictures. The idea is to arouse and instruct the people on health and sanitation, as well as to give the health officers accurate information as to sanitary conditions in the county.

MASSACHUSETTS

Floating Hospital Starts.—Boston's floating hospital made its first trip of the season on June 27. The morning trip was in honor of Isaac Kaffenburg, whose wife donated the money for the trip. The evening trip was Brookline night, the funds for which were provided from a dansant given by Mrs. John A. Curtis.

The Salem Fire.—It is announced that among the physicians who were burned out in the recent Salem fire, three are in straitened conditions, and the Essex South District Medical Society is raising a fund for their relief. The chairman of the Boston School Board offered the governor the services of the school nurses of Boston to relieve the refugees of the Salem fire. The services of Dr. Thomas F. Harrington, as sanitary officer, were also offered.

Harvard Faculty Changes.—Dr. Myles Standish, Boston, since 1886 a member of the Faculty of Harvard Medical School, and for the last five years Williams professor of ophthalmology at Harvard, has been appointed professor emeritus, beginning next September. Dr. Walter Ray Bloor, who has been a member of the faculty of the Medical School of Washington University, St. Louis, has been appointed assistant professor of biologic chemistry.

MISSOURI

Baby Camp Opened.—St. Luke's Baby Camp, Kansas City, was opened June 15. The camp consists of two screened and protected tents, with accommodations for eighteen babies, and clinics are held every morning at 8:30, in charge of Dr. David E. Broderick.

Personal.—Dr. George P. Pipkin was installed as superintendent of the Kansas City General Hospital, July 1; he will also continue in charge of the old City Hospital.——Dr. Lew Chee, Pekin, China, a member of the National Board of Health of China, is visiting Dr. Thomas J. Lynch, St. Joseph.——Dr. F. G. Beard has been appointed police surgeon of St. Joseph.——Dr. George R. Thompson, St. Joseph, has been appointed superintendent of State Hospital No. 2, in that city.——Dr. Clarence W. Russell, Springfield, attempted to leap from an automobile and was run over by the machine, sustaining severe bruises.

St. Louis

Work Begun on Isolation Wards.—Work on the construction of the two wards of the Isolation Hospital, between the city sanatorium and the city infirmary began July 1. The building, furnishing and equipment will cost about $228,000, of which $198,000 is now available. The new wards will accommodate 150 patients and the necessary attendants.

Hospital Staff Appointed.—At the meeting of the City Hospital Board, held June 24, the following appointees were named for the resident staff of the City Hospital: resident internist, Dr. Ralph A. Kinsella; alienist, Dr. John A. Pringle; resident surgeon, Dr. Benjamin W. Klippel, and assistants, Drs. Neil S. Moore, James F. Jolley, William L. Hanson, Floyd A. Burger, James R. Higgins, Ralph McReynolds, William F. Wagenbach, Louis Boonschaft, Thomas S. Fleming, Stephen L. O'Brien, Frank J. Smith and Preston Thompson.——Dr. Earle E. Kneale was appointed resident physician at the Infirmary and Isolation Hospital.

NEW YORK

Guard Against Bubonic Plague.—The Health Department of Yonkers is taking precautionary measures to guard against the introduction of the bubonic plague by the sugar boats which dock at the National and Federal refineries in that city. It is pointed out that the boats are so thoroughly inspected at the port of New York that Yonkers need not place a quarantine on them.

New Members of State Board.—Drs. Melvin J. Stearns, Ogdensburg; Henry B. Minton, Brooklyn; Hans Zinsser, New York City; William G. Bissell, Buffalo, and Ralph H. Williams, D.O., Rochester, were appointed members of the State Board of Medical Examiners by the Board of Regents, June 25.——Dr. William H. Park, New York City, and Dr. Herbert U. Williams, Buffalo, have been appointed by the State Board of Regents members of the medical council.——Dr. Jacob Diner, New York City, has been appointed a member of the State Board of Pharmacists.

New York City

Guild Needs Funds.—St. John's Guild makes an appeal to the public for subscriptions to defray the expenses of the floating hospital, the *Helen C. Juillard*, and the Seaside Hospital, Newdorp, S. I.

To Purchase Land for the Seaview Hospital.—The board of aldermen at its recent meeting passed an ordinance to increase the area of land occupied by the Seaview Hospital by purchase or condemnation to an extent of about 200 acres. It is stated that the space is needed for the present hospital and also to provide a site for future buildings.

Deaths Under Christian Science Treatment.—At an inquest into the death of George W. Robertson who had been attended for two weeks prior to his demise by two Christian Scientists, the jury recommended that the matter be turned over to the district attorney's office as the testimony appeared to indicate that the two women had practiced medicine without a license. A second death has just occurred under similar circumstances.

Street Accidents for June.—The National Highways Protective Society reports that fifty-three persons were killed in the streets of New York in June, twenty-six of these being children. Automobiles and motorcycles head the list as causes of these deaths. Records for the corresponding month last year show that the number of street accidents was forty-two. During the past months there have been 234 persons killed in the streets of the greater city of which 119 were children.

Blackwell's Island Conditions Bad.—The representative of the Prison Reform Association, after an investigation of Blackwell's Island, has submitted a report to the commissioner of corrections stating that the medical staff of Blackwell's Island consists of only one physician and one hospital helper. The hospital itself consists of two ill-furnished wards containing in all twenty-seven beds. It is also pointed out that no examination of the prisoners is made when they enter the prison.

Personal.—Dr. Jokichi Oguri, a Fordham graduate, the first Japanese ambulance surgeon to do service in New York City, has just gone on duty at the Fordham Hospital.——Dr. Simon Flexner, Dr. F. Peyton Rous and Dr. Linsley R. Williams have joined the pellagra commission, composed of physicians from the United States Navy and Army, the Public Health Service and the New York Post-Graduate Medical School at Spartansburg, S. C.——Dr. William L. Bulkley, Dr. Rolfe Kingsley, Dr. and Mrs. Charles H. May, Dr. and Mrs. Edward B. Dench and Dr. John Dwyer have sailed for Europe.——Dr. Graeme M. Hammond has returned from Europe.——Drs. Amy Walker, Helen Palliser and Anna Tjohnlands, graduates of Cornell, have begun their duties as interns at Bellevue Hospital, July 2.——Dr. Geraldine Watson of the same school begins her internship January 1.——Dr. Sigismund S. Goldwater, health commissioner of New York City, has returned from a trip to the West Indies and the Panama Canal.

Medical College Adopts Five-Year Course.—At the meeting of the alumni of the Long Island College Hospital on June 9, it was announced that a five-year course had been adopted and that, as a result, a number of changes had been made in the curriculum of the college. Candidates from high schools possessing a full medical student's certificate will be admitted to the subfreshman class and will study chemistry, biology, physiology, embryology, physics and French or German. The fifth or senior year will be given over to hospital bedside work. The new wing to the Long Island College Hospital will be completed this summer and will provide accommodation for 450 patients; the students will have free access to the building. All the clinical branches will have full-time resident instructors, so that ample opportunities for clinical instruction will be afforded. Dr. Thomas H. Evans has been appointed a full-time assistant in the department of anatomy, histology and embryology.

OHIO

New Officers.—Dayton Medical Society, June 12: president, Dr. Elmer E. Bechtel; secretary-treasurer, Dr. J. Fred Wuist. ——Salem Physicians' Club, June 24: president, Dr. Thomas J. Lyle; secretary, Dr. Ludwig F. Derfus.——Adams County Medical Association at Manchester, June 17: president, Dr. John W. Irwin, Seaman; secretary-treasurer, Dr. Oliver T. Sproull, West Union.

Visitors to State Board of Health.—Dr. Eugene R. Kelley, Seattle, commissioner of health of Washington, and Dr. Samuel J. Croumbine, secretary of the State Board of Health of Kansas, visited the Ohio State Board of Health at its weekly conference in Columbus, June 16. Dr. Kelley delivered an address on "The Fight Against Plague in Washington," outlining plans for the various systems of attacking it and methods by which rats were exterminated.

Diphtheria at Massillon State Hospital.—An outbreak of diphtheria comprising more than thirty cases recently occurred at Massillon State Hospital. A mild form of sore throat first prevailed and this was followed by a sharp outbreak of diphtheria among the inmates and attendants of the hospital. The outbreak was traced by Drs. Frank G. Boudreau and Walter E. Obetez, of the State Board of Health, to infection of the milk-supply, and immediate steps were taken to safeguard the supply by taking cultures from the throats of all who handled the milk and pasteurizing the entire supply. Four deaths occurred. Dr. Henry C. Eyman, superintendent of the hospital, placed all patients and suspects in one building, secured the immunization of all attendants and nurses, and placed Dr. Paul J. Alspaugh, senior resident physician, in charge, relieving him of all other duties. The outbreak is now believed to be under control.

Typhoid Fever at Canal Dover.—A peculiar epidemic of typhoid fever recently occurred at Canal Dover. This city experienced a similar outbreak in 1910, comprising nearly a hundred cases and traceable to one milk route. The same milk route was implicated in the present outbreak, more than 90 per cent. of the forty-one cases being restricted to customers of this dairy. Dr. A. W. Davis, the health officer, and Dr. F. G. Boudreau of the State Board of Health made a searching investigation but were unable to discover any evidence of carriers in the family of this dairyman. This milk-supply was temporarily stopped and arrangements made for pasteurizing the milk under the supervision of the health officer. This outbreak illustrates the danger of distributing milk in bulk, as contamination frequently results therefrom. All milk sold in Canal Dover hereafter will be distributed in bottles which are properly sterilized.

Personal.—Dr. Will J. Prince, Piqua, was operated on for appendicitis at the Memorial Hospital, June 25.——Dr. Simon Morgenroth has been elected a member of the staff of the Akron General Hospital. Dr. Clarence Ordway, of the East Side Hospital, Toledo, has purchased property adjoining the hospital, on which he expects to erect an addition to the institution.——Dr. Chester E. Kinzel, Wilmington, has been elected coroner of Clinton County to fill the unexpired term of Dr. Frank A. Peelee, resigned.——Dr. Martin Stamm, Fremont, and Dr. and Mrs. Charles M. Harpster and daughter, Toledo, have sailed for Europe.——Dr. Walter B. Turner, Youngstown, has been appointed local surgeon of the Baltimore and Ohio system.——Dr. George J. Smith, Niles, had conferred on him the honorary degree of M.A. at the commencement exercises of the University of Pittsburgh, Pa., June 17.——Dr. Daniel C. Houser, Dr. Colin R. Clark and Dr. James A. Sherbondy, Youngstown, have sailed for Europe.——Dr. Horace Bonner, Dayton, was the guest of honor at a dinner given by the sisters of St. Elizabeth Hospital to the medical staff of that institution in honor of the completion of his first quarter-century as a member of the staff.

Cincinnati

Alumni Meet.—The Ohio-Miami Alumnal Association elected the following officers for the ensuing year: president, Dr. Arthur C. Bachmeyer, Cincinnati; vice-presidents, Drs. Lockhart Nelson, Hillsboro, Ohio, John E. Wilson, Butler, Ky., Allen L. Bramkamp, Richmond, Ind., and Merrick T. McCarty, Cincinnati; secretary, Dr. Martin H. Urner, Cincinnati, Dr. Charles Stammel, Jr., Cincinnati.

City Physicians Instead of Fire Surgeons.—The city solicitor has prepared an ordinance which abolishes the position of fire surgeon and creates the post of city physician. It provides for the appointment of a chief city physician with a salary of $2,500; and for a city physician with a salary of $2,000 a year. Under the new arrangement the appointees will be under the direct supervision of the director of public safety, and will make examinations of the fire and police departments.

PENNSYLVANIA

Gift to Hospital.—The Abington Memorial Hospital has been given a $6,000 automobile ambulance by George D. Widener.

University of Pennsylvania to Admit Women.—It is reported that the trustees of the University of Pennsylvania have voted to admit women to the medical college of the university, beginning in the fall of 1914.

Antitoxin Stations.—In preparation for the Fourth of July accidents, Dr. Samuel G. Dixon, State Commissioner of Health, established sixty-nine lock jaw antitoxin stations throughout the state, where antitoxin was furnished to the poor without charge and these were so placed that every part of the state was within easy reach of one.

Hospital Chiefs Named.—On June 30 Dr. Harte, director of Public Health and Charities, made provisional appointments to positions at the Philadelphia General Hospital by naming Dr. Joseph C. Doane as chief resident physician to succeed Dr. Henry Sykes, deceased, and Dr. J. L. Donohue as assistant physician under Chief Physician Jackson, of the Hospital for the Insane.

Personal.—Drs. William H. Irwin and Haven Shoemaker have sailed for Europe.——Dr. William H. Walsh, superintendent and chief medical officer of the Municipal Hospital for Contagious Diseases, has been appointed medical administrator of the new Children's Hospital, which is now being erected at Eighteenth and Fitzwater streets.——Thomas S. Gates, president of the Philadelphia Trust, Safe Deposit and Insurance Company, has been elected president of the Board of Managers of the University Hospital to succeed John Sailer, deceased.——Dr. Frank R. Starkey was fired on by his intoxicated colored butler, June 30, but fortunately was not injured. ——Dr. William L. Rodman, President-Elect of the American Medical Association, was one of the guests of honor at a reception given by the Medical Club of Philadelphia, June 26.

WISCONSIN

Fresh-Air Camp Opened.—The municipal open-air camp of Neenah, at Gillingham's Corners, was opened June 17 with six children. The camp has a capacity of twelve, and will be conducted for ten weeks.

Personal.—Dr. and Mrs. Richard C. Buchanan, Green Bay, and Dr. James P. Lenfesty, De Pere, have returned from Europe.——Dr. and Mrs. Victor F. Marshall, Appleton, sailed for Europe, June 27.——Dr. William F. Lorenz of the staff of the Wisconsin State Hospital, Mendota, who has been on leave of absence for six months, to investigate pellagra in the South for the United States Public Health Service, has been granted an additional two months' leave to continue the work.——Dr. John J. McShane has been reelected health commissioner of Kenosha.——Dr. Charles A. Wright, Delavan, sailed for Europe, June 26.

GENERAL

The Service of Medicine to Civilization.—We have received a large number of letters commendatory of the address of President Vaughan, published in THE JOURNAL, June 27, and two or three have suggested that it is just the kind of matter to put into the hands of influential laymen. The address certainly will be of interest to the thinking layman, and undoubtedly many of our readers would like to present a copy to some of their friends or patients. We have had reprints made and shall be glad to furnish them on receipt of stamped addressed envelope, so long as the supply lasts.

Leper Colony.—The gift of $25,000 by the late Lord Strathcona is to be used for the establishment of the first leper colony in the United Kingdom. It is soon to be established in a deserted part of Essex. There are now only about twenty lepers in Great Britain, and these will be brought together for care at a central colony. A specially equipped hospital will be provided.

New Officers for Academy.—The American Academy of Medicine, at its annual meeting in Atlantic City, June 20-22, elected the following officers: president, Dr. Woods Hutchinson, New York City; secretary-treasurer, Dr. Charles McIntire, Easton, Pa. (reelected); and assistant secretary, Dr. William L. Estes, South Bethlehem, Pa. San Francisco was selected as the next place of meeting.

Climatologists Change Name.—At the thirty-first annual meeting of the American Climatological Association, held in Atlantic City, it was decided to change the name of the

organization to the American Climatological and Clinical Association, and to hold the next meeting in San Francisco. Dr. Henry Sewell, Denver, was elected president, and Dr. Guy Hinsdale, Hot Springs, Va., was reelected secretary-treasurer.

Bequests and Donations.—The following bequests and donations have recently been announced:

Michael Reese Hospital, Chicago, a donation of $10,000 for the endowment of two beds in the children's ward, one in memory of Maurice Selz; the other in memory of Soloman and Miss Celia Austrian.

Children's Memorial Hospital, Montreal, $25,000, for the building of a wing in memory of the late Roswell Cross Lyman. Montreal General Hospital, $3,000; Royal Victoria Hospital, $3,000; Protestant Hospital for the Insane, Montreal, $3,000; Montreal Anti-Tuberculosis League, $1,000; and Grace Dart Home, $2,000, by the will of the late Henry Lyman, a victim of the *Empress of Ireland* disaster.

Lynn, Mass., Hospital, $10,000, by the will of Luther S. Johnson, Lynn.

New York Hospital, New York City, $10,000; Isabella McCosh Infirmary, Princeton, N. J., $5,000, by the will of Dr. Frank Hartley.

Lighthouse for the Blind, New York City, an endowment fund of $300,000, as a result of a four months' campaign.

Gift to Johns Hopkins.—Delivery was made July 6 at Baltimore of securities valued at $1,500,000 presented by the General Education Board to the Medical School of Johns Hopkins University, to be known as the William H. Welch Endowment for Clinical Education and Research. The entire income from this fund is to be utilized for the support of full-time teaching and research departments of medicine, surgery and pediatrics, or diseases of children. The trustees have provided that in reorganizing these three departments, professors and their assistants should hold their posts as salaried university officials, and accept personally no fees whatever for any medical or surgical services which they might render. The hospital wards and out-patient departments are to be under the control of the university medical or surgical teachers, but the teachers are to be free to render any service required in the interest of humanity and science. They are to be free to see any patient they desire. Private patients, however, will pay a reasonable fee to the university, rather than to the professors personally. Simultaneously with the completion of the reorganization of the Johns Hopkins Medical School, in accordance with this new plan, the university trustees have chosen Dr. Theodore C. Janeway, hitherto professor of medicine at Columbia University, to become professor of medicine of the Johns Hopkins Medical School. The chair of surgery at Johns Hopkins, under the full-time arrangement, is to be occupied by Dr. William S. Halsted, most of whose surgical career has been passed in the Johns Hopkins Medical School, where, since the establishment of the Johns Hopkins Hospital, he has been its surgeon-in-chief and professor of surgery. The chair of pediatrics will be occupied by Dr. John Howland, who was called a year ago from the professorship of pediatrics at Washington University, St. Louis, and appointed physician in charge of the Harriet Lane Home for Invalid Children, this institution being the pediatric clinic of Johns Hopkins Medical School. Johns Hopkins will become the first medical school to be placed on the full-time basis in all departments. A grant of $750,000 has been made to Washington University, St. Louis, and of $500,000 to the Medical School of Yale University, on an understanding that they also reorganize their work so as to put their clinical teaching on a full-time basis.

The Plague Situation.—A telegram under date of July 7, from New Orleans, states that up to date three cases of bubonic plague have occurred, with two deaths. The last case was discovered July 2. This focus of infection was three miles from the first. In the infected zone of the city, 6,000 rat-traps have been placed by direction of the health authorities. The infected area, with the Industrial Home of the Volunteers of America as a center, is under strict observation; and the trapping operations are being pushed to the limit of the area of rodent infection. Twenty-seven inmates of the Industrial Home of the Volunteers of America, where the two patients afflicted with plague were living when stricken, have been placed in an isolation camp, where they will remain until all danger is past. Plans have been made for the construction of a concrete barrier around the infected zone, extending four blocks from the center in all directions, and having four rat drives leading toward the center. Other barriers will be erected as the campaign progresses, with the ultimate idea of the extermination of every rat in the infected district. On July 7 the Public Health Service took control of the situation and established headquarters at 163 Dryades Street. All points outside the city are being thoroughly protected by rigid enforcement of outgoing quarantine. The officers of the Public Health Service on duty are: Assistant Surgeon-General William Colby Rucker, in charge; Surgeons Gustave M. Corput and Richard H. Creel, executive officers; Past Assistant Surgeon Friench Simpson and Assistant Surgeon Charles L. Williams, bacteriologist. Thirty inspectors, twenty foremen and one hundred laborers are already at work. Dr. Oscar Dowling, president of the State Board of Health; Dr. William P. O'Reilly, city health officer, and a committee of representative citizens are cooperating with the service officials to the fullest extent. Twelve lay inspectors from San Francisco, who are expert rat catchers, are on their way to New Orleans.——The embargo on the down-town district was lifted June 30, on advice from Surgeon-General Blue, so that normal business conditions now prevail in the forty-nine blocks of the business district, which have been under quarantine since the first case of bubonic plague was reported.

The Illinois State Board of Health has instructed its health officers along the Mississippi, Ohio, Wabash and Illinois rivers to begin the extermination of rats, and the railways entering the state from the South have been asked to lend their aid toward the exclusion of plague-bearing rats.——The acting health commissioner of St. Louis, Dr. G. A. Jordan, has instructed the police to start an investigation regarding the rat question along the river front of that city.——Dr. J. A. B. Adcock, secretary of the Missouri State Board of Health, has instructed all Missouri towns along the river front to begin a crusade against rats.——Memphis has adopted the necessary precautionary measures against the introduction of plague-infected rats.——Galveston has instituted a strict quarantine against the port of New Orleans, has planned a quarantine against the port of Santiago de Cuba, and has outlined plans for a determined campaign against rats, and for the destruction of their breeding places. The city of Galveston will pay 8 cents for each rat delivered to its health officers at the City Hall.——The quarantine board of Norfolk, Va., has recommended quarantine on vessels coming from New Orleans.——Dr. Eugene F. McCampbell, secretary of the Ohio State Board of Health, has notified the health officers of Cincinnati, Ironton, Portsmouth, Pomeroy, Middleport, Marietta, Bellaire, Bridgeport and Steubenville to guard carefully the landing of cargoes from Ohio River steamers, and to prevent rats from coming ashore. He has also dispatched state health inspectors, S. G. Boudreau and W. E. Obetz to make a trip of the river ports and see that instructions are rigidly enforced. He has also ordered that rat guards be placed on all ropes and hawsers from river vessels, and that watchmen be stationed at all gangplanks. He favors a state-wide campaign of extermination of rats.——At a meeting of the Kentucky State Board of Health, held in Louisville, June 29, a resolution was adopted authorizing Dr. John G. South to investigate the situation in New Orleans.——Dr. Charles A. Mohr, health officer of Mobile, has been delegated by Dr. W. H. Sanders, state health officer of Alabama, to represent the state and to render assistance in measures for the prevention of the spread of bubonic plague along the gulf coast. Vessels from New Orleans and other infected ports will not be allowed to dock without placing rat guards on all hawsers and taking all other precautions to prevent rats from coming ashore.

CANADA

New Officers.—Moose Jaw Medical Society: president, Dr. George P. Bawden; secretary-treasurer, Dr. Charles G. Sutherland.

Tuberculosis in Ontario.—In June only 95 cases of tuberculosis were reported to the Ontario Board of Health from that province. There were 143 for the same month in 1913. The board claims that physicians are not reporting these cases as required by the public-health act. The cases of infectious diseases in June totaled 1,503, with 89 deaths, as against 1,566 and 154 deaths for the corresponding month of 1913.

Personal.—Dr. John Hunter, Toronto, has gone abroad.——Dr. David Tannenbaum, Montreal, is summering in the Catskills.——Dr. Charles J. Patton, Montreal, is spending two months in Pennsylvania.——Dr. Walter Walker Wright, Toronto, will spend several months in the hospitals of Europe.——Dr. John T. Finnie, Montreal, has gone to England and the Continent.——Dr. Louis deL. Harwood, Montreal, has returned from Paris, much improved, after a serious operation.——Dr. Walter A. Wilkins, Montreal, is spending the summer in Germany.

LONDON LETTER

LONDON, June 19, 1914.

Royal Commission on Venereal Diseases

At the fortieth meeting of the Royal Commission on Venereal Diseases, evidence was given by Dr. Dubois Havenith of Brussels, who was secretary to the international congresses of 1899 and 1902 dealing with venereal diseases. He said that in the case of syphilis, disinfection, by which he meant the getting rid of contagious lesions and the sterilizing of contaminated objects, was essential. In effect, disinfection in the case of syphilis consisted in treatment. Dr. Havenith laid stress on the need for early diagnosis, free and readily accessible treatment and supervision of the treatment for such time as might be necessary. For the purpose of early diagnosis, laboratories should be provided in which bacteriologic and other tests could be carried out. Clinics should be open after the ordinary hours of labor. In order that patients, who were often negligent or ill-instructed, should not abandon their treatment it was desirable to introduce some measure of control or surveillance. Such a system was already in operation at the dispensary founded by Malvoz at Liége, where arrangements had been made, with the consent of the patients, for keeping in touch with them, for the purpose of giving advice, for submitting them to the investigations necessary to determine the permanence of the cure, for warning them against contracting marriage too early, etc. The scheme worked well, and the patients were willing to fall in with the arrangements. The public should be enlightened on the gravity of syphilis from both the individual and the public point of view, but it was equally important that it should be realized that syphilis was a curable disease, that as a rule it was avoidable, and that if properly treated it ceased to be contagious.

The Problem of Clean Milk

Though the problem of a clean milk-supply has been discussed for many years by health officers and others, and some regulation attempted by the government, it still remains unsolved. Dr. Kenwood, Chadwick Professor of Hygiene and Public Health in the University of London, in a lecture on the subject at the Royal Sanitary Institute, said that there was overwhelming evidence that milk was one of the dirtiest articles of food sold. While the risk of the spread of tuberculosis through milk was considerable and called for further safeguards, the most urgent public health need was a cleaner milk-supply, for the bacteria and dirt in raw milk were doubtless responsible for much sickness and mortality among infants, especially in the summer months. The real solution of the problem was to produce a class of workers trained in the production of clean milk, and a general public with an educated concern to demand clean milk. The effective weapons were to educate, train, advise and supervise, and a great many inspector-instructors would have to be appointed if anything of value were to accrue to that branch of the work. The futile regulations of the Local Government Board made under the Dairies, Cowsheds and Milkshops Order, should be replaced by clearly defined conditions for the sanitary collection and distribution of milk, and for the circumstances which should determine the granting of an annual licensing. The time had gone by when without any knowledge or previous training, any one should be permitted to embark on this industry. Until the government seriously undertook to provide sufficient legal powers and an efficient machinery for administrative purposes, the heating of milk (low-temperature pasteurization) represented the only safe provisional solution of the milk problem.

Security of Tenure of Health Officers

Mr. Lloyd-George, Chancellor of the Exchequer, has received a deputation of the British Medical Association, the Society of Medical Officers of Health, the National Housing and Town-Planning Council, the Mansion House Council, the Rural Housing and the Sanitation Council, and the Royal Institute of Public Health on the subject of the security and tenure, and the superannuation of health officers. Among the points argued were that the health officers were practically under the direction of persons whose defects they very often had to point out, that superannuation should be given at the age limit, that they were liable to dismissal at three months' notice, that in one instance a health officer had been asked by his council to rewrite a portion of his report, and that it was impossible for health officers to be as fearless in the interests of the public good as they should be. Replying, Mr. Lloyd-George said that the speeches represented a case that only had to be stated to carry conviction to fair and impartial minds. The powers entrusted to local authorities even at the present moment were enormous. He should like to see some of these powers considerably strengthened, but he was convinced that until greater independence was insured for the officers who would administer those provisions, it was idle for Parliament to waste time in carrying more acts. Security of tenure to health officers and inspectors must be an essential part, if not an essential preliminary to any further legislation dealing with the housing question. He had had letters from health officers saying that they dared not report the true facts, and that the reports sent to the Local Government Board did not represent a tenth of the facts in their areas. Therefore he was wholeheartedly in sympathy with the demand, and the government had felt that there ought to be specific grants for a substantial part of the salaries of the officers concerned, and that they should be in a position to demand from the local authorities greater security of tenure.

The London School of Tropical Medicine

Portraits in bronze relief of Mr. Joseph Chamberlain and his son Mr. Austen Chamberlain have been placed in the hospital connected with the London School of Tropical Medicine as a memorial to the work which they have done in establishing the school. In unveiling the portraits Mr. Lewis Harcourt, Colonial Secretary, traced the development of the school to the conception and foresight of Sir Patrick Manson. The number of students attending the courses had grown from seventy in the first year to nearly 200 in the last, and nearly 1,800 passed through the school, about 700 of whom had entered colonial service. Only those like himself who had the vital statistics of the colonial service before their eyes could appreciate what these men had done to diminish the dangers of tropical life. The West African coast, once regarded as a death-trap, now might be esteemed a sanatorium. The death-rate of British officers had been reduced from 28 to 8 per thousand, and the invaliding from 62 to 28.

Increase in the Sale of Nostrums

Last year in his budget statement, Mr. Lloyd-George stated that there had been a decline in the revenue derived from stamps which have to be affixed to nostrums. This, as stated in THE JOURNAL, he attributed to two causes: the insurance act, which provided free attendance and medicine for the whole industrial population, and the revelations made at the government committee of inquiry into nostrums. The figures for the present year show an increase. The receipts from the sale of medicine duty stamps amounted to $1,800,000, or $160,000 more than in the twelve months 1912-1913. This is the greatest advance in any one year, for the last fifteen years at least. The increase in 1912-1913 was only $2,300. Last year also witnessed a small rise in the number of the licenses, 43,156 being issued, against 43,118 in 1912-1913.

PARIS LETTER

PARIS, June 19, 1914.

Third Meeting of Interns

The third Congrès de l'internat des hôpitaux des villes de Facultés was held at Lyons, May 29 to June 2, under the presidency of Dr. Hugouneng, dean of the Faculté de médecine de Lyon.

The question of foreigners' internship and the practice of medicine in France was discussed. It was decided the present state of affairs might continue, which admits foreigners to internship on the same terms as French students, but allows the practice of medicine only on two conditions: the possession of a government diploma with a French bachelor's degree, and naturalization.

Cases in which the intern has been a victim of an infection or wound because of his service are numerous: wounds infected in the course of an operation or necropsy, infections or sicknesses of many kinds (typhoid fever, diphtheria, scarlatina, syphilis, etc.). Interns, however, may not benefit by the law of 1898 concerning occupational accidents, having no salaries, and not being in the position of workers in industrial establishments. Beside the facilities which are accorded them by the hospital administration to receive necessary care and the honorary distinctions which are sometimes conferred on them, the assembly thought it would be desirable if a compensation might be provided for the temporary and sometimes

chronic disability which results from these professional accidents. It was unanimously decided to ask the administrations concerned for insurance against the professional risks to which interns are exposed in their hospital service.

Finally, it was voted to have the Associations amicales d'internes des hôpitaux des grandes villes de Facultés make the declaration of association prescribed by the law of 1901, so that the title of "hospital interns" and the legal power to protect the title against usurpers might be assured.

Homage to Military Physicians

At the opening of the session of the Académie de médecine, June 2, Raphael Blanchard, the secretary, read a list of physicians who had died in Morocco since the beginning of the present campaign. This list, prepared and sent by the sanitary service of the army, shows that in three years nine military physicians have died in Morocco—one from amebic dysentery, three from typhoid fever, two from exanthematous typhus and three under fire. Military physicians, Blanchard said, are non-combatants, and advantage is taken of this fact to limit their privileges and honors. But aside from the fact that the deaths which result from the care given to sick soldiers are sufficiently glorious, statistics show that the enemy's balls strike physicians as well as combatants, because their devotion forces them out on the firing-line to recover or to care for the wounded. The academy entered fully into the solemn homage which the orator rendered to these dead men.

In the name of the military health services, Vaillard, director of the Ecole d'application de médecine et de pharmacie militaires du Val-du-Grâce, feelingly thanked Blanchard and the academy for their manifestation of sympathy toward these victims of duty.

The Gastralgic Variety of Pyloric Stenosis

At the session of the Académie de médecine of June 16, Dr. Enriquez, physician to the hospitals of Paris, introduced a particular variety of pyloric stenosis, characterized essentially by the late painful paroxysm, to the exclusion of every other symptom. The lesions ascertained, sometimes neoplasms and sometimes ulcers, are situated at the level of the pylorus itself, at a distance, on the lesser curvature, or toward the duodenum. The clinical picture varies according as the stomach, examined on the roentgenoscopic screen, is of the hypertonic or atonic type. In the former case, the paroxysms are much more violent; the dilatation of the organ, always relative, seldom occurs, and is at times even exclusively segmentary, localized in the prepyloric antrum. In the hypotonic type, often accompanied in women by ptosis, the late pains are attenuated. The progress of the symptoms is essentially intermittent. Diagnosis is generally very difficult; but dechloridation followed very strictly for five or six weeks, thus reducing the secretion of hydrochloric acid to normal, will entirely eliminate the late pain in cases in which the hyperchlorhydria is of purely nervous origin, without organic lesion. For the rest, the use of a pneumatic cushion, more or less inflated, as the case may demand, rapidly improves the ptosis, whether simple or accompanied by other lesions. If this double therapeutic test is not efficacious, it reveals indirectly the existence of an organic lesion, whose location and nature repeated roentgenoscopy will determine. If the pain persists and the gastric distention increases, particularly if accompanied by alteration of the general condition, there is sufficient argument for surgical intervention, preferably pylorectomy, but if not practicable, gastro-enterostomy with complete exclusion of the pylorus.

Standardization of the Size of Medical Publications

The practitioner who desires to file methodically the numerous publications which he receives, in order to consult them when occasion arises, finds himself facing many difficulties, the greatest of which is the lack of uniformity in the dimensions of these publications. The result is a heap of diverse pamphlets of different sizes and bindings, merely a confused bundle, as hard to file as to consult. In mentioning these inconveniences in the *Gazette des hôpitaux*, Dr. P. Louge, surgeon of the hospitals of Marseilles, proposes the adoption of a standard form to facilitate the classification and preservation of these medical publications. The most convenient dimensions would be 15 by 23 cm. (6 by 9 inches). A class heading should be placed on the upper margin, and bear at the right the important word of the pamphlet's title, and on the left the capital letter of this word. The left margin should be left entirely blank for the rebinding, etc.

BERLIN LETTER

BERLIN, June 19, 1914.

Personal

A few days ago Kehrer, formerly director of the obstetric clinic at Heidelberg, died at the age of 77. At the beginning of his university work, he devoted himself to physiology and was first privat-docent in this department at Giessen and later professor of obstetrics at Giessen and then at Heidelberg in 1881. He published a series of scientific monographs in the field of gynecology in general, a text-book on operative obstetrics and a text-book on obstetrics for midwives.

Reduction of Infant Mortality

According to the Imperial Statistical Bureau, the infant death-rate has never been so small in Germany as in 1912. The percentage of deaths to those born living in 1912 was 14.7 as compared with an average for the last ten years of 18.5. The rate varies much in different parts of the empire, ranging from 17.7 in Bavaria to 10 in Hesse and only 6.6 in Waldeck. The relatively greater mortality of male children in the first year of life is notable. Illegitimate children also show a higher death-rate, although in this case also there was marked improvement in 1912. The wide-spread assumption that the mortality of illegitimate children is markedly greater in large cities, especially in Berlin, is not sustained.

Accidents to Radium

This refers not to injuries to patients by radium, but accidents which have happened to the radium itself in its application. The newspapers reported the loss of a tube of radium worth $5,000 (20,000 marks) in a sanatorium in Charlottenburg. The tube was borrowed by the management of the sanatorium for the treatment of a patient. After its use it was laid in a small dish and later was thrown into the sink by a nurse who did not know the importance of the costly article. Although the Charlottenburg water-works were immediately notified and several of the connected canals of Charlottenburg were searched by workmen and three machines in the pumping-station removed and thoroughly searched, the radium was not found. The management of the sanatorium has now the doubtful pleasure of paying not only for the radium which was borrowed but also for the searching of the Charlottenburg water-system.

The other two accidents of a similar character turned out more fortunately. In a Munich hospital, in some unexplained way, a tube filled with radium valued at about $5,750 (23,000 marks) was thrown into the garbage and collected by the garbage-wagon. Notice was immediately given to the station for sorting the garbage at Puckheim near Munich and luckily the tube was found.

In a Strassburg deaconess' home, a patient had the misfortune to swallow a radium tube worth $6,250 (25,000 marks). The radium had been fastened inside the mouth and was to remain there for seventy-two hours. The fear that the radium might produce some disturbance inside the body was not justified. It was possible by the immediate administration of a powerful cathartic to free the patient from the foreign body. These experiences are, at any rate, a warning to be careful in the handling and preservation of the costly metal.

An Official Opinion on Friedmann's Remedy

June 15 there was a consultation in the medical division of the Prussian Department of the Interior on the value of Friedmann's remedy for tuberculosis, at which the ministerial director, Kirchner, presided and a number of clinicians, pathologists and bacteriologists participated. At this conference there was unanimity of opinion that there had been no pronounced curative action of the remedy either in cases of pulmonary or in other forms of tuberculosis. On the other hand, direct injuries from the use of the remedy had been established which depended in part on the action of the remedy itself and in part were to be explained by the fact that it was sometimes introduced into commerce contaminated with foreign bacteria. These experiences have led a number of prominent clinicians to refrain from the employment of Friedmann's remedy. An order forbidding its use is not to be issued because any limitation of the physician in the choice of his methods of treatment is foreign to German jurisprudence. It must be left to the scientific testing by the individual physician to determine whether and in what cases he will further use the remedy. The measures that the medical authorities have taken and still have in prospect in order to prevent the remedy from coming on the market in a contaminated condition received the approval of the meeting.

Marriages

JOHN E. HASTINGS, M.D., Bernalillo, N. Mex., to Mrs. Mary S. Stickney of Washington, D. C., at Las Vegas, N. Mex., June 10.

IRWIN BRADFIELD SMOCK, M.D., Canton, Ohio, to Miss Elizabeth Marvel Hutton of Atlantic City, N. J., June 24.

JOHN HOWARD NESBITT, M.D., Honey Grove, Texas, to IRENE THORNTON, M.D., of Atlanta, Ga., June 1.

WALTER MARTIN BUCHER, M.D., Warrensville, Ohio, to Miss Rena Richards of Toledo, Ohio, June 24.

HARRY LEONARD MERSCHER, M.D., Philadelphia, to Miss Elsie C. Hoffmann of Toronto, Ont., June 24.

EMMET FIELD HORINE, M.D., to Miss Helen Brittingham Ruthenberg, both of Louisville, Ky., June 30.

ARTHUR PURDY STOUT, M.D., New York City, to Miss Jean Stoddart of Toronto, Ont., in Paris, June 23.

J. EMMETT CLARK, M.D., to Miss Alice Louise Tennis, both of Oakland, Cal., at San Jose, Cal., June 20.

EDWARD ROSSETER MUGRAVE, M.D., Denver, to Miss Leah M. Troutman of Fort Collins, Colo., June 24.

CHARLES H. HUMPHREYS, M.D., Dayton, Ohio, to Miss Mary E. O. Sykes of Cincinnati, June 22.

THOMAS FRANCIS NEVINS, M.D., to Miss Catherine E. Smith, both of Brooklyn, N. Y., June 24.

JOHN ALBERT CHENOWETH, M.D., Akron, Ohio, to Miss Ethel Ball of Webb City, Mo., June 22.

HARRY V. KITZMILLER, M.D., to Miss Edna Bales, both of Wray, Colo., at Pueblo, Colo., June 13.

PAUL BALDWIN, M.D., Kennett, Mo., to Miss Elizabeth Brasfield of Unionville, Mo., June 17.

FRANCIS PIERCE SILVA, M.D., to Miss Anna Louise Sullivan, both of Charlestown, Boston, June 24.

NELIUS JULIAN NESSA, M.D., to Miss Florence Bankson, both of Sioux Falls, S. Dak., June 24.

JOSEPH L. ROSE, M.D., to Miss Belle Netzer, both of Lena, Wis., at Green Bay, Wis., June 23.

GILES ANTHONY DE COURCY, M.D., to Miss Martha Sudduck, both of Cincinnati, June 20.

DAVID HENRY WHERRITT, M.D., Chicago, to Miss Elizabeth Griffith of New Orleans, June 23.

FRED H. POWERS, M.D., to Miss Cora Sprecher, both of Baraboo, Wis., June 24.

MORRIS FISHBEIN, M.D., Chicago, to Miss Anna Mantel of Indianapolis, July 7.

DREXEL LOWRY DAWSON, M.D., to Miss Lula Sinclair, both of Chicago, recently.

Deaths

Jeremiah Clark Stewart, M.D. College of Physicians and Surgeons in the City of New York, 1884; a Fellow of the American Medical Association; and Western Surgical and Gynecological Association; professor of principles of surgery and associate professor of surgery in the University of Minnesota, Minneapolis; surgeon to the Minneapolis City Hospital, and consulting surgeon to the Northwestern and Asbury hospitals, Minneapolis; died at his home in Minneapolis, June 25, from heart disease, aged 60.

Frank Martin Cunningham, M.D. Medical College of Virginia, Richmond, 1899; a member of the Medical Association of Georgia; and formerly president of the Macon Medical Society; and a specialist in diseases of the eye, ear, nose and throat of Macon, Ga.; consulting surgeon to the eye, ear, nose and throat department of the Macon City Hospital, and sometime department editor of *Southern Medicine and Surgery;* died in the University Hospital, Philadelphia, June 21, from pernicious anemia, aged 37.

William B. Moseley, M.D. University of Virginia, Charlottesville, 1890; of Brooklyn, N. Y.; a member of the American Medico-Psychological Society; an alienist to the Kings County Hospital and in charge of the observation ward since 1903; died suddenly in that institution, June 25, from heat prostration, aged 45.

George Strawbridge, M.D. University of Pennsylvania, Philadelphia, 1866; a Fellow of the American Medical Association; and of many American and German ophthalmologic and otologic societies; formerly professor of otology in his Alma Mater; ophthalmic surgeon to the Presbyterian Hospital and Pennsylvania Eye and Ear Infirmary, and consulting surgeon to the Wills Hospital, Philadelphia; died at his home in Philadelphia, June 29, aged 68.

Caleb Scattergood Middleton, M.D. Homeopathic Medical College of Pennsylvania, Philadelphia, 1862; formerly a member of the State Board of Medical Examiners of Pennsylvania; a trustee and director of the Hahnemann College and Hospital; for fifty years a practitioner of Philadelphia; died at his suburban home in Ardmore, Pa., June 24, aged 75.

Giles Eldon French, M.D. University of Oregon, Portland, 1899; a medical officer of the United States Reclamation Service; with headquarters at North Yakima, Wash.; but who had been on duty at the reclamation camp, Clear Creek, Wash.; died suddenly, June 22, from heart disease, aged 42.

James Hamilton Morgan, M.D. Jefferson Medical College, 1889; one of the founders of the Physicians and Surgeons Hospital, Wilmington, Del., and for two years instructor in science in Wilmington High School; died at his home in Wilmington, June 17, from cerebral hemorrhage, aged 56.

James Bryan Whitfield, M.D. University of Pennsylvania, Philadelphia, 1867; a Fellow of the American Medical Association, and once president of the Marengo County, Ala., Medical Society; a Confederate veteran; died at his home in Demopolis, Ala., June 19, aged 72.

Marvin Reed Palmer, M.D. College of Physicians and Surgeons in the City of New York, 1882; since 1895 chief surgeon of the police department of New York City; died at the Lloyd Sanitarium, New York City, five days after an operation for appendicitis, aged 54.

James B. Geyer, M.D. Medical College of Indiana, Indianapolis, 1882; a Fellow of the Ohio State Medical Association; for sixteen years a member of the school board of Sidney, Ohio; died at his home in that city, June 18, from carcinoma of the stomach, aged 66.

John William Gallaher, M.D. Washington University, St. Louis, 1878; a Fellow of the American Medical Association; for many years a practitioner of Graham, Texas; but for two months a resident of Fort Worth; died at his home in Fort Worth, June 20, aged 62.

John Richard Devine, M.D. Albany, N. Y., Medical College, 1910; a Fellow of the American Medical Association; and formerly a member of the staff of the Samaritan Hospital, Troy, N. Y.; died at his home in Utica, N. Y., March 4, from pneumonia, aged 27.

Edwin Darling (license, Iowa, years of practice, 1886). For forty-four years a practitioner of Crawford County, Iowa; and hospital steward during the Civil War; for one term postmaster of Vail, Iowa; died at his home in that place, June 20, aged 76.

George O. Murray, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1896; a member of the Wisconsin State Medical Society; for several years health officer of Tomah; died at his home in that city, June 20, from cerebral hemorrhage, aged 56.

Paul Sherman, M.D. St. Louis College of Physicians and Surgeons, 1898; a Fellow of the American Medical Association; and an inspector for the Illinois State Board of Health; died at his home in Shawneetown, Ill., June 19, from nephritis, aged 38.

James Howell Wilkes, M.D. University of Nashville, Tenn., 1862; a member of the Tennessee State Medical Association; assistant surgeon in the Confederate service during the Civil War; died at his home in Columbia, Tenn., June 20, aged 83.

Charles T. Palmer, M.D. Medico-Chirurgical College of Philadelphia, 1904; a Fellow of the American Medical Association; deputy health officer of Los Angeles; died in that city, June 15, from general nervous breakdown, aged 33.

William H. Kessler, M.D. Cincinnati College of Medicine and Surgery, 1869; a retired physician of West Milton, Ohio; died at his home, June 24, from heart disease, aged 75.

Charles Julius Funck, M.D. Medical College of Ohio, Cincinnati, 1878; was found dead in his home in Cincinnati, June 24, from heat exhaustion, aged 58.

Albert S. Clarke, M.D. New York University, New York City, 1848; died at his home in Bushnell, Ill., May 13, from senile debility, aged 90.

John Ambert Greer, M.D. University of Pennsylvania, Philadelphia, 1887; of Audubon, N. J., and Philadelphia; died in the Presbyterian Hospital, Philadelphia, April 18, from the effects of an overdose of laudanum, aged 47.

James Ewell Bell, M.D. Hampton-Sidney, Va., Medical College, 1849; for more than sixty years a practitioner of Virginia; died at the home of his daughter in Wilmington, N. C., May 27, from senile debility, aged 90.

George C. Soule (license, Rhode Island State Board of Health, 1895); for thirty-six years a practitioner of Wickford, R. I., and vicinity; died at the home of his daughter in Wickford, June 22, from nephritis, aged 60.

Otto Chester Joselyn, M.D. Detroit Medical College, 1893; whose license was revoked by the California State Board in 1905; died in the Lane Hospital, San Francisco, June 14, after an operation for appendicitis, aged 47.

Arthur Hurtado De Mendoza, M.D. Dearborn Medical College, Chicago, 1905; of Piper City, Ill.; died suddenly from cerebral hemorrhage while making a professional call near La Hogue, Ill., June 12, aged 50.

John E. Binns, M.D. University of Nashville, Tenn., 1861; a confederate veteran; for four years tax assessor of Davidson County, Tenn.; died at his home in Nashville, May 1, from senile debility, aged 75.

James L. Hogeboom (license, examination, New York). A practitioner since 1864; and for thirty-five years a resident of Castleton, N. Y.; died in New York City, June 2, from senile debility, aged 84.

Benjamin Franklin Harvey, M.D. New York University, New York City, 1880; a pioneer practitioner of Whitman County, Washington; died at his home in Colfax, Wash., June 22, aged 62.

William H. Booth, M.D. University of Iowa, Iowa City, 1877; a member of the Oregon State Medical Association; died at his home in Lebanon, Ore., June 18, from heart disease, aged 61.

Louis Van Altena (license, Wisconsin). For more than sixty years a practitioner of Sheboygan County, Wis.; died at his home in Cedar Grove, Wis., June 19, from heart disease, aged 84.

Daniel Boone Wilcox, M.D. Medical College of Ohio, Cincinnati, 1891; a member of the Kentucky State Medical Association; died at his home in Grayson, Ky., April 25, aged 57.

Clarence Weston Tolles, M.D. Bellevue Hospital Medical College, 1868; a member of the New Hampshire Medical Society; died at his home in Claremont, N. H., May 28, aged 69.

Samuel James Henderson, M.D. Long Island College Hospital, N. Y., 1866; of Bad Axe, Mich.; died at the home of his daughter in that city, June 14, from acute gastritis, aged 69.

Henry Augustus Gates, M.D. Bellevue Hospital Medical College, 1877; a member of the Medical Society of the state of New York; died at his home in Delhi, N. Y., May 23, aged 65.

Frederick Lee Johnson, M.D. Ohio Medical University, Columbus, 1895; of Worthington, Ohio; died in the Grant Hospital, Columbus, Ohio, June 20, aged 36.

George Richard Bowles, M.D. St. Louis University, 1866; of Ukiah, Cal., died at the home of his brother in Berkeley, Cal., March 7, from tuberculosis, aged 74.

William L. Cuthbert, M.D. Rush Medical College, 1862; of Long Beach, Cal.; died recently in St. Petersburg, Fla., aged 83.

Luman M. Godfrey, M.D. Detroit Homeopathic Medical College, 1875; died at his home in Kentland, Ind., May 4, aged 84.

Frank Richard Newman, M.D. Bellevue Hospital Medical College, 1871; died at his home in Brooklyn, N. Y., June 16.

Jesse Parker Bixby, M.D. Castleton (Vt.) Medical College, 1852; died at his home in Rushford, N. Y., April 3, aged 92.

Charles S. Barney, M.D. Albany, N. Y., Medical College, 1883; died at his home in Milford, N. Y., May 26, aged 55.

George L. Laforest, M.D. Victoria College, Cobourg, Ont., 1879; died at his home in Montreal, March 26, aged 57.

William Wayland Bonnell (license, Illinois, years of practice, 1878); died recently at his home in Astoria, Ill.

R. L. Barker (license, Tennessee, 1906); died at his home near Camden, Tenn., June 13, from tuberculosis.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

DR. JIROCH COMPANY

A Fraudulent Mail-Order Medical Concern

For some years, the Dr. Jiroch Company, 533 South Wabash Avenue, Chicago, has been conducting a mail-order medical concern. On June 24, 1914, the federal authorities declared the concern fraudulent and denied it the use of the mails. The attorney for the Dr. Jiroch Company was Fletcher Dobyns of Chicago, the same man who appeared in behalf of a similar fraud operated from Detroit, the "Interstate Remedy Company." The Jiroch fakery also introduced, through its attorney, a physician, who attempted to justify the methods of this concern. This physician was Dr. Nathaniel H. Adams of Chicago, member of the Chicago Medical Society and, through this membership, Fellow of the American Medical Association.

The methods of the Dr. Jiroch Company were investigated some time ago by THE JOURNAL, and much of the matter that follows was written nearly two years ago. Other matters prevented the completion of the "story" and it was filed away.

THE PERSONNEL

As in all such cases, the physician whose name gives the title to this fraud has been but a mere stool-pigeon. At the time of THE JOURNAL'S investigation, the real men behind the scheme seem to have been:

Melville W. Johnson, Garrett, Indiana, *President.*
A. G. Hagerty, *Secretary.*
Thos. R. Bradford, *Treasurer.*
F. W. Jiroch, *Medical Director.*

Jiroch was a student at the Harvey Medical College at Chicago at the time this low-grade institution went out of existence. He then seems to have gone over to Jenner Medical College, Chicago, by which school he was graduated in 1906, receiving a license to practice, from the State of Illinois, the same year. The practical man of affairs in the Dr. Jiroch Company seems to have been Thomas R. Bradford, who, it is said, was formerly with a somewhat similar fake concern, the "Blair Remedy Company" of Chicago. Bradford, apparently, is an old hand at mail-order medical frauds. In 1904, Thomas R. Bradford was operating a business in Cincinnati under the name of "Bradford & Company." The scheme was an attempt to sell an alleged cure for "lost vitality, sexual debility," etc., and was put out of business by the federal authorities in December, 1904.

ITS METHODS

The Dr. Jiroch Company obtained its victims through advertisements placed in the cheaper weeklies and daily papers. In addition, the concern bought or rented "sucker lists" either from letter brokers or from concerns in a similar disreputable business. An enormous amount of circularizing was done, much of it in a haphazard way; the member of THE JOURNAL staff, who has corresponded under assumed names with various medical frauds, was richly favored with Jiroch "bait" although he had never written to the concern, showing that these names had been purchased or rented.

While, in what follows, Jiroch's name is used as though he was the one individual responsible, it should be borne in mind that he was but the "hired-man" of the concern. Nevertheless all letters were signed (in facsimile) with Jiroch's name and the victim was led to believe that Jiroch gave personal and individual attention to each case.

The prospective victims were sent circular letters, printed in imitation of typewriting. With each letter was a brilliantly colored "certificate" that was alleged to entitle the holder

to a "Special Free Proof Treatment and Diagnosis." Not all the "certificates" were the same; they varied in color and in the series of questions asked. Some were sent to those supposed to be suffering from "female trouble," others to those presumably deaf, still others to those whose ailments were of a general or indefinite nature. But whatever kind of "certificate" was sent they all offered the "Special Free Proof Treatment and Diagnosis."

Photographic reproduction, reduced, of the "Special Free Proof Treatment and Diagnosis Certificate." This was one of the pieces of advertising claptrap used by the Dr. Jiroch Company to impress the ignorant. The evident intent was to make the recipient of these "certificates" imagine that he was receiving a special benefit from the company. The certificates were printed in various color combinations, the one reproduced above being in orange and purple. Each certificate bore what was apparently a serial number; as a matter of fact, all had the same number, "247."

THE "TREATMENT" FREE AND OTHERWISE

The Jiroch advertisements that appeared in the cheap weeklies also featured the "free treatment and diagnosis." Both the advertisements and the certificates contained a list of symptoms. Says the Jiroch Company:

"Put an X mark before every symptom you have and two XX marks before your worst symptom."

Those who answered the advertisements or who sent in the "certificates" received a "free proof treatment" consisting of two small boxes of tablets, one kind pink, sugar coated and ovoid in shape varying in number from four to six; the other white or very faintly pinkish, sugar coated and cylinder-shaped varying in number from seven to fourteen. By the same mail, a circular letter came giving directions as to the use of the "free treatment." This "letter" also was prepared in imitation of typewriting and the name of the individual to whom it was sent was filled in by means of a typewriter. All of the "proof treatments" seem to have been identical irrespective of the age or sex of the persons to whom they were sent or whether the recipients were suffering from consumption, rheumatism or malaria.

Within twenty-four hours of receiving the "free treatment" the patient had inflicted on him, unasked, a "full size treatment." This came in a cardboard box holding four small boxes numbered respectively, "1," "2," "3" and "4." The boxes were labeled as follows:

Box 1.: "Prescription No. 16759. Directions: Take one tablet before or after the morning meal. Swallow with a little water."

Box 2.: "Prescription No. 29408. Directions: Take one tablet before or after the noon meal. Swallow with a little water."

Box 3.: "Prescription No. 30651. Directions: Take one tablet before or after the evening meal. Swallow with a little water."

Box 4.: "No. 4039. Directions: Take one tablet at bedtime, or as often as necessary to insure about two movements of your bowels each day."

The tablets labeled Prescription No. "16759" that came in Box 1 are white or faintly pinkish, sugar coated, cylindrical-shaped tablets, apparently identical with part of the "free proof treatment."

The tablets in the box labeled Prescription No. "29408" were large, bright yellow, sugar-coated tablets.

The tablets in Box 3—Prescription No. "30651" were brown, uncoated tablets oval in shape.

The tablets in Box 4, labeled "No. 4039" were apparently identical with the pink tablets that came with the "free proof treatment."

ANALYSIS OF THE "TREATMENT"

A complete set of the "Dr. Jiroch Treatment" was subjected to examination in the Association's laboratory, and the chemists' findings may be briefly summarized as follows:

Box 1. (B 16759): These pinkish pills were found to contain licorice root, starch, some vegetable extractive and a trace of alkaloid, apparently strychnin.

Box 2. (B 29408): These yellow pills were found to have for their chief constituents, powdered licorice root and cornstarch with small quantities of vegetable extractive.

Box 3. (B 30651): These tablets, according to the chemists, were found to consist essentially of cornstarch and extract of nux vomica. Quantitative analysis indicated that the total alkaloidal content was equivalent to about ⅓ grain of nux vomica in each tablet.

Box 4. (B 4039): These pink pills were found to consist essentially of starch and aloes, with a trace of strychnin. No other medicinal ingredient was found.

Greatly reduced facsimile of a typical Jiroch advertisement.

THE SLIDING PRICE SCALE

The same mail that brought the "full size treatment" also brought a circular letter—in imitation typewriting—supposed to contain a diagnosis of the patient's condition. These "diagnoses" were stock letters in which the name of the person addressed was filled in by means of a typewriter and two lines in the body of the letter purporting to be the "diagnosis" were also filled in. The victim was urged to send in $3 for this full-size treatment. If the request was ignored, the patient was bombarded with follow-up let-

ters at more or less regular intervals, each letter more insistent than its predecessor in urging that money be sent for the treatment. As a rule, the first three follow-up letters maintained the original price, $3; the fourth letter offered to accept $1.50 while the fifth letter came down to $1.00. If this last offer failed to elicit a reply, Jiroch, apparently, decided that this individual did not belong in the "sucker" class and dropped the name from his books.

In investigating the Jiroch fraud, THE JOURNAL accumulated several of the "full size treatments" sent—unasked—to various hypothetical individuals. Here are ten of the "full size treatments," for which $3.00 each was asked—$30.00 worth. It would have cost the Jiroch Company 40 cents to have these medicines, for which they asked $30.00, returned, but the 40 cents was not sent. The reason? The $30.00 worth of pills were not worth 30 cents!

We know of no instance in which the Jiroch Company voluntarily sent the four cents postage for the return of the $3.00 "treatment." This is not surprising as it would not be "good business" to expend four cents in postage for the return of pills worth less than four cents.

WHAT WERE THE DIAGNOSES WORTH?

We have said that the second letter from Jiroch to his prospective victim gave what purported to be a "diagnosis" of the patient's case. As a matter of fact, this diagnosis, so-called, was one that could have been made by the girl typists who filled it in on the imitation typewritten letters—and perhaps was. Did the person put crosses against "rheumatism," "indigestion" and "piles," Jiroch made a "diagnosis" that the person was suffering from rheumatism, indigestion and piles. This was the method by which these quacks cajoled their victims into believing that a physician had carefully studied their cases and diagnosed their ailments.

To show the worthlessness of Jiroch's "diagnoses," THE JOURNAL had "symptom blanks" sent to the company from various parts of the country and describing widely varying forms of ailments. In every instance, Jiroch sent the free trial treatment and followed it up immediately with his "full-size treatment" together with a "diagnosis" letter detailing the very symptoms that had been sent in. The "full-size treatments" that were sent were all the same whether the supposed patient was suffering from consumption, rheumatism or Bright's disease.

One letter was sent from Virginia and a cross was put against the following list of symptoms:

"Spit up mucous and slime."
"Pain in the back."
"Heartburn and indigestion."
"Bowels irregular and constipated."
"Weak, nervous and trembling after slight exertion."

Back came the "diagnosis" letter which read:

"According to my diagnosis what you need to cure you completely is a thorough special treatment from the *Spitting up of Mucus, Pains and Soreness Across the Back, Poor Digestion, Constipation, Nervousness, Defective Elimination and Uric Acid Conditions.*"

The words that we have italicized are those that had been filled in on a typewriter. The "full-size treatment" sent in this case consisted of the four boxes containing the pills labeled respectively: Prescription Numbers "16759," "29408," "30651" and "4039"—price $3.

Another letter sent from a small town in Illinois had a cross placed against the following symptoms:

"Have sick headache."
"Heart trouble."
"Stomach trouble."
"Are depressed in spirits."
"Have twitching of the muscles."

The "diagnosis" letter to this suppositious patient read:

"According to my diagnosis what you need to cure you completely is a thorough special treatment for the *Headache, Poor Circulation, Stomach trouble, Depressed Spirits, Twitching Muscles, Defective elimination, and Uric Acid Conditions.*"

Here again the words we have italicized had been filled in with the typewriter—and the same boxes of pills were sent. Another symptom blank THE JOURNAL had mailed from a town in Ohio with crosses against the following:

"Are troubled with catarrh."
"Have dizziness."
"Are depressed in spirits."
"Have too frequent desire to pass water."

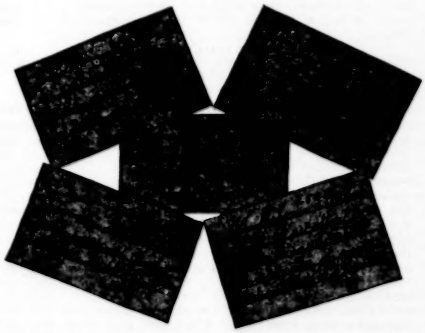
Quack Jiroch "diagnosed" this case:

"According to my diagnosis what you need to cure you is a thorough special treatment for the *Catarrh, Dizziness, Depressed Spirits, Bladder Trouble, Defective Elimination and Uric Acid Conditions.*"

In this case, too, the recipient of the diagnosis got the same stock "full-size treatment"—Prescription Nos. 16759, 29408, 30651 and 4039—with the usual request for a remittance of $3.

From a city in Pennsylvania THE JOURNAL had a symptom blank sent in describing as well as is possible by mail a case of diabetes mellitus. The person sending it in stated explicitly that he had diabetes and also put crosses against the following:

"Are losing flesh."
"Feel weak and all run down."
"Have itching or burning of skin."
"Have boils and pimples on face and on neck."
"Have too frequent desire to pass water."



Photographic facsimile of the labels on the four boxes sent to practically all those who filled out a "symptom blank" and sent it to the Dr. Jiroch Company. Whether suffering from rheumatism, diabetes, consumption, malaria or what not, the patient would receive the four boxes of pills labeled as shown above. The so-called individual treatment was a farce.

Diagnosing by mail is, of course, an anomaly. The scientific value of a diagnosis of ailments in persons who have never been seen and whose symptoms are described by the persons themselves, is *nil*. Nevertheless if any conclusion at all could be reached regarding the hypothetical case just described, it must have been that the patient was suffering from diabetes mellitus. What did Jiroch say?

"According to my diagnosis what your case requires now is a thorough special treatment for the *Kidney Trouble, Itching Skin, Impure Blood, Nervousness, Headaches, Defective Elimination and Uric Acid Conditions.*"

And the treatment? The same "full-size treatment" sent to the sufferer from consumption, rheumatism, etc., that is, Boxes Nos. 1, 2, 3 and 4 (Prescriptions Nos. 16759, 29408, 30651 and 4039). Worse yet, the diabetic—in common with all others—was told:

"For your case I would advise a mixed diet."

A "mixed diet" recommended to a supposititious diabetic to whom the starches in such articles as bread, biscuits, potatoes, etc., and sugars, sirups and sweets might, in the amounts ordinarily taken, be deadly! A mixed diet, indeed!

Other diagnoses just as worthless as those detailed above, could be given, but these are sufficient to make plain the worthlessness of the diagnosis and the fraudulence of the Jiroch "treatment." Yet the Jiroch concern said about Jiroch:

"I am a specialist and I do not have one remedy that cures everything . . . . My special treatments are made up of my own private preparations perfected after years of successful practice."

One thing will be noticed regarding the fake diagnoses. No matter what other ailments the patients were supposed to have, they were all suffering—according to Jiroch—from "Defective Elimination and Uric Acid Conditions." Whether it was a case of consumption, kidney disease or "female trouble" every person whose case Jiroch professed to diagnose was a sufferer from "defective elimination and uric acid conditions."

The Post-Office Stops the Fraud

The matter preceding represents the investigations made by THE JOURNAL some time ago. That which follows is taken largely from the memorandum of Assistant Attorney-General Lamar to the postmaster general recommending the issuance of a fraud order. Judge Lamar's report says, that after a thorough review of the evidence submitted with the report of the post-office inspectors who investigated the Dr. Jiroch Company, he finds the facts to be as follows:

"The Dr. Jiroch Company and Dr. Jiroch are engaged in selling medicines through the mails. In order to obtain the names and addresses of persons to whom they may direct their solicitations, they advertise in newspapers and magazines having a general circulation throughout the United States."

THE CLAIMS MADE

A typical advertisement is then presented, of which the assistant attorney-general says:

"It will be noted that the representations contained in this advertisement are calculated to lead the reader to believe, among other things, (*a*) that for the purposes stated Dr. Jiroch will give free to anyone suffering from any of the symptoms described and responding to the advertisement a treatment for the permanent relief of the disease from which such person is suffering; (*b*) that this treatment will consist of special medicines adapted to the particular disease from which the applicant is suffering; (*c*) that Dr. Jiroch can and will diagnose and determine the disease from which the person so responding is suffering by means of the check marks placed before the symptoms set forth in the advertisement; and (*d*) that he can by this method cure kidney and bladder ailments, rheumatism, stomach, liver and bowel disorders, heart trouble, nervous weakness, catarrh and all other diseases arising from impure blood, uric acid conditions, etc."

SOME DIAGNOSES

Then follows the statement that those who answer the advertisements receive a stock letter, one of which was put in evidence, and with the letter the so-called free-proof treatment which was "the same in every case." The advent of the second letter was described and the letter itself put in evidence and the fact noted that the person who had answered the advertisement was sent, unasked, a "three-weeks' treatment," for which he was expected to send $3. Then the memorandum continues:

"In the investigation of this case, letters were written to the Dr. Jiroch Company by the inspectors under assumed names and asked treatment for the following conditions in turn: (1) 'Severe headaches for sometime and no medicine will give me any but temporary relief,' (2) 'A bad cough that I have had for quite a while—am all the time hawking and spitting,' (3) 'Loss of sexual power,' (4) 'Simply will not make flesh—otherwise well,' (5) 'Too fat and bust lacks development,' and (6) 'Female troubles.' In each of these cases, except that numbered 5 above, the applicant was sent the correspondence quoted above, and the affection of the applicant was diagnosed as follows: (1) Headache, defective elimination and uric acid conditions; (2) cough, spitting up slime and mucus, defective elimination and uric acid conditions; (3) failing manhood, defective elimination and uric acid conditions; (4) being too thin, defective elimination and uric acid conditions, and (6) female trouble, defective elimination and uric acid conditions. In case numbered 5 the applicant was written a letter in which she was advised that the symptoms given by her were rather unusual in combination and asked to give further particulars. In reply the inspectors gave the following information: 'Thirty-one years old, 5 feet 5 inches high, weight 154 pounds, not much fat on my breasts, have been fleshy ever since I was a young girl, both parents dead, father small, mother fleshy, breasts always have been flat.' Thereon the respondents sent to the writer the same letters as were sent out in the other cases, diagnosing her affection as obesity."

THE CLAIM OF INDIVIDUAL TREATMENT

The judge notes further:

"If a remittance is not received promptly in response to the letter accompanying the treatment for which a remittance of $3 is asked, other letters are sent the sufferer in which he or she is advised, among other things, that 'the treatment I sent you is exactly what you need,' that it 'was made up of my own private prescriptions, especially for your individual requirements,' that 'the treatment is a thorough one for every symptom and condition you described, and designed to cure you permanently,' and that 'I made a careful diagnosis of your symptoms and made up a treatment for the ailments you told me you wanted to be cured of.'

"The evidence also shows that, when a remittance is received and a report blank submitted, it is the practice of the respondents to advise the remitter that his case requires further treatment and to send him another supply of medicine for which they ask a remittance of $5, together with another report blank, on the receipt of which, filled out, they send him more medicine, and so on; and that the purpose of the representation that they have reserved for his use a free 'two-weeks' additional treatment' to be sent him after the receipt of his remittance of $3 and the report blank filled out is to give them an opportunity of sending him additional medicines for which they ask further remittances."

The memorandum then states that the post-office department had the assistance of some well-known practicing physicians of Washington, while, on the other hand:

DR. ADAMS TESTIFIES FOR JIROCH

". . . Mr. Dobyns introduced and examined as an expert witness for the respondents Dr. Nathaniel H. Adams of Chicago. The physicians called by the government testified that the symptoms set forth in the advertisement of the respondents, taken alone or in combination with any or all of the others, were symptoms of a large number of diseases; that each of these diseases required different treatment; that it was utterly impossible to tell the cause of these symptoms from the information obtained in accordance with the system followed by the respondents; that some of the diseases giving rise to those symptoms were incurable or only curable by a surgical operation, and that a postponement of proper treatment in many of those diseases would be dangerous.

"These facts are so well-recognized as hardly to require expert testimony to prove. They were admitted by Dr. Adams, who stated it as his belief, however, that the marking of the coupon in the manner directed by the prospective patient would afford to the respondents a clue by the use of report blanks, they could in the course of time determine with some certainty the disease from which he was suffering."

Then Judge Lamar continues:

ONLY 2 PER CENT. ADMIT BENEFIT

"I find from the evidence in this case that whether this treatment prescribed by the respondents is of value in any case where given in accordance with this system is entirely a matter of chance; and that this is well known to the respondents. That this is a fact is shown not only by the evidence above referred to, but also by the testimony of Inspector

Angier, who conducted the investigation in this case. Inspector Angier wrote to a large number of patrons of the respondents, and only 2 per cent. of those who replied stated that they had been benefited by the treatment given to them. There are also a large number of complaints in the case, alleging dissatisfaction.

NINETY PER CENT. OF THE "DIAGNOSES" MADE BY CLERKS

"Inspector Angier also testified, and no evidence to the contrary was submitted by the respondents, that but about 10 per cent. of the coupons on which the diagnosis and treatment are predicated are considered by Dr. Jiroch. The rest of the blanks are handled by clerks, who place on them numbers indicating the disease from which the applicant for treatment is suffering; these numbers indicate the medicines to be sent and the names of diseases or symptoms to be filled in in the diagnosing letter by other clerks. The letters sent out, however, although forms, are printed in imitation of typewriting and bear the signature of Dr. Jiroch in facsimile of handwriting."

A SUMMARY

In summing up, Judge Lamar says:

"From the evidence in this case it is clear, and I find, that the representations in the advertisements and circular matters of these respondents are false and fraudulent in that:

"1. Dr. Jiroch does not give free for advertising purposes a remedy for the permanent relief of disease; but on the contrary requires from persons who answer the advertisement a payment for the treatment which he prescribes.

"2. Dr. Jiroch does not intend to 'go over your other questions and symptoms and prepare my answer in full, and to pay careful attention to every phase of your trouble and write you fully in a day or so and tell you what else ought to be done to cure you completely,' as represented in the letter accompanying the free treatment, but intends to at that time send the addressee in a few days a form-letter made up by a clerk, together with certain medicines put together by a clerk, in accordance with the system followed in the conduct of this business.

"3. The free treatment does not consist of medicines adapted to the particular disease from which the applicant is suffering, but is in fact merely a tonic and laxative sent to all alike without regard to the particular symptoms of the individual case.

"4. The respondents cannot and do not determine the disease or affection from which the applicant for treatment is suffering by means of the marking of the symptoms set forth in the advertisement; and therefore cannot and do not prescribe medicines adapted to the cure or relief of the disease from which such applicant is suffering, unless by chance.

"5. The respondents do not know whether or not the applicant is curable, for they do not have sufficient information on which to determine this fact.

"6. The respondents cannot by this method cure kidney and bladder trouble, rheumatism, stomach, liver and bowel disorders, heart trouble, nervous weakness, catarrh and all other diseases arising from impure blood, uric acid conditions, etc.; but on the contrary this system is utterly impractical and any benefit resulting therefrom is due to chance.

"The postmaster at Chicago reports that the respondents receive approximately 275 pieces of first-class mail daily."

As a result, the assistant attorney-general for the postmaster-general recommended the issuance of a fraud order which, as previously noted, was put in force June 24, 1914.

HOW JIROCH GAVE "INDIVIDUAL TREATMENT!"

Showing in tabular form some of the results obtained by THE JOURNAL in its endeavor to test the scientific value of the Jiroch company's methods

Letter Sent	To	"Diagnosis" Made by Jiroch	Special, "Individual Treatment" Sent	Price Asked in Letters				
				1st	2nd	3rd	4th	5th
Dec., '11....	J. D. G.—Wyoming	Debility and neurasthenia; kidney trouble; dizziness; poor digestion; defective elimination; uric acid conditions.	R16759; R29408; R30651; R4039	$3.00	$3.00	$3.00	$1.50	$1.00
April, '12....	W. H. M.—Ohio	Catarrh; dizziness; depressed spirits; bladder trouble; defective elimination; uric acid conditions.	" "	"	"	"	"	"
April, '12....	T. S.—Minnesota	Rheumatism; sore joints and muscles; diarrhea; defective elimination; uric acid conditions.	" "	"	"	"	"	"
April, '12....	E. R. B.—Minnesota	Itching skin; stomach trouble; weak lungs; impaired appetite; defective elimination; uric acid conditions.	" "	"	"	"	"	"
Sept., '12....	C. H. F.—Minnesota	Stomach trouble; defective elimination; uric acid conditions.	" "	"	"	"	"	"
Oct., '12....	F. L. C.—Illinois	Headaches; poor circulation; stomach trouble; depressed spirits; twitching muscles; defective elimination; uric acid conditions.	" "	"	"	"	"	"
Oct., '12....	W. B. D.—Virginia	Spitting up mucus and slime; pains and soreness across back; poor digestion; constipation; defective elimination; uric acid conditions.	" "	"	"	"	"	"
Dec., '12....	G. W. T.—Pennsylvania	Kidney trouble; itching skin; impure blood; nervousness; headaches; defective elimination; uric acid conditions.	" "	"	"	"	"	"

Correspondence

The Plague in the Sixteenth Century and Now

To the Editor:—In connection with the recent reported occurrence of a few cases of bubonic plague in New Orleans, it may be interesting to take a glance backward and see how times have changed and the world has moved, particularly through the intellectual development of the medical profession as regards preventive hygiene or sanitary science.

In Reyburn's "Life of John Calvin," the theologian, published this year, mention is made of the outbreak of plague at Geneva, Switzerland, in 1543, and he quotes a letter by John Calvin dated March 27, 1545, as follows:

"A conspiracy of men and women has been discovered, who for the space of three years have spread the plague through the city, by what means I know not. Fifteen women have been burnt. Some men have been punished even more severely. Some have committed suicide in prison. Twenty-five are still in custody. Notwithstanding, the conspirators do not cease to smear the locks of the doors with their poisonous ointment."

The methodical detail in cases of execution was to chop off the hands of the victims and then burn the bodies alive in a public place.

Geneva, a city of less than 20,000 population at that time, was regarded as one of the chief intellectual centers of Europe, but nevertheless ignorance, superstition and savagery went hand in hand; probably conditions there were no worse than in many other populous centers throughout the Continent. Torquemada had flourished during the preceding generation, Servetus was burned at Geneva in 1553 for a mere theological quibble, and, for witchcraft, George Jacobs was hanged at Salem, Mass., so late as 1692.

So the world does move.

GEORGE HOMAN, M.D., St. Louis.

Intra-Uterine Crying of Child during Labor

To the Editor:—I enclose a short report of an obstetric case that was novel to me.

Mrs. H., aged 17, American, primipara, was confined June 10. It was a breech presentation in which attempts at version were unsuccessful. The patient was put under anesthesia, the cervix dilated with the hand and one foot grasped and brought down. While I was trying to bring down the other foot, the peculiar phenomenon occurred. When I passed my left hand into the uterus, the baby began crying and continued uninterruptedly until the body and shoulders were delivered and the head engaged, the crying being heard by the anesthetist and others in the room. The child is living and weighs 10½ pounds.

H. A. Cables, M.D., East St. Louis, Ill.

[Comment.—The crying of the infant during the parturition while the head is still in the uterus, although a somewhat rare occurrence, is quite possible and cases are mentioned by most authorities on obstetrics. In order for this to occur, the membranes must be ruptured and air must have access to the interior of the uterus. Like ordinary respiration, it is excited by reflex action, and hence would be favored by manipulations. Stories of children crying in the uterus during pregnancy must be considered, from the evidence available, as absolutely fabulous.—Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WASSERMANN REACTION IN LEAD-POISONING

To the Editor:—Can you tell me if a positive Wassermann reaction is obtained in lead-poisoning? If so, please give references to the literature. John H. Burke, M.D., Rockland, Mass.

Answer.—A positive Wassermann reaction has been obtained in a considerable number of cases of lead-poisoning; in a smaller number of cases, the reaction has been negative. The evidence is not sufficient to determine whether the positive reaction is due to syphilis or, in some way, to the influence of lead. It seems probable that many syphilitics are especially susceptible to lead-poisoning. It is also possible that the reaction, in some cases, is due to the fact that the lead-poisoning favors a positive result of the Wassermann reaction in cases of latent syphilis which would not otherwise react.

The following articles may be referred to:

Field, Cyrus W.: The Occurrence of a Positive Wassermann Reaction in Cases of Lead-Poisoning, The Journal A. M. A., June 1, 1912, p. 1681.

Dreyer, A.: The Wassermann Reaction in Lead-Poisoning, *Deutsch. med. Wchnschr.*, 1911, xxxvii, 769; abst., The Journal A. M. A., June 3, 1911, p. 1694.

Schnitter: The Wassermann Reaction in Lead-Poisoning, *Deutsch. med. Wchnschr.*, 1911, xxxvii, 1009; abstr., The Journal A. M. A., July 8, 1911, p. 174.

Perussia, F.: Lead-Poisoning and the Wassermann Reaction, *Deutsch. med. Wchnschr.*, 1911, xxxvii, 1545; abstr., The Journal A. M. A., Sept. 30, 1911, p. 1169.

Gibson, J. L.: Wassermann Reaction in Lead-Poisoning, *Australasian Med. Gaz.*, 1913, xxxiii, No. 14.

Hilgermann, R.: Wassermann Reaction and Lead-Poisoning, *Deutsch. med. Wchnschr.*, 1912, xxxviii, 118.

LITHIUM SALTS IN URIC ACID DIATHESIS

To the Editor:—There appears to be a diversity of opinion regarding the action of lithium salts in uric acid diathesis, some authorities declaring that their action as a solvent is much overrated and that the addition of lithium to the blood-serum does not increase the solubility of the uric acid in it. An opinion on this subject through The Journal would be greatly appreciated. E. Clayton, M.D., Vancouver, B. C.

Answer.—There is no reliable clinical evidence that lithium salts increase the excretion of uric acid by the kidney except as they exert a diuretic action. Experimental work has failed to show that lithium salts or the alkalies cause the absorption of deposited urates in gouty tophi, etc. The theory of the administration of lithium is founded on a misinterpretation of chemical facts. Lithium forms a highly soluble urate and in the test-tube may favor the solution of urates, but in the blood-serum and the urine other salts react in such a way that the urate is not made more soluble; thus, sodium urate is much less soluble than lithium urate, and as sodium is present in large amount in the blood-serum and in the urine there is, according to chemical principles, a tendency to the formation of sodium urate, which is soluble with difficulty, instead of the easily soluble lithium urate. Furthermore, the blood contains phosphates which tend to form with lithium the insoluble lithium phosphate so that the tendency, on the introduction of a lithium salt into the blood-serum or urine containing sodium urate and sodium phosphate, is to the formation of the insoluble lithium phosphate and the sodium urate, which is with difficulty soluble. There is no reason, therefore, to expect lithium salts to favor the solution of uric acid or urates, in the tissues, the blood-serum or the urine.

ARTICLES ON JUVENILE DELINQUENCY

To the Editor:—I should like to obtain material for a book on juvenile delinquency from a medical and surgical point of view. Can you refer me to any literature on that subject?

J. C. Crossland, M.D., Zanesville, Ohio.

Answer.—The following is a list of articles on this subject:

Literature on Relation of Disease and Crime, Queries and Minor Notes, The Journal, April 25, 1914, p. 1350.

Literature on Disease and Crime, Queries and Minor Notes, The Journal, May 9, 1914, p. 1494.

The Physical Basis of Crime: A Symposium, published by American Academy of Medicine, 52 North Fourth Street, Easton, Pa., $4.

Brown, P. K.: The Neurotic Basis of Juvenile Delinquency, The Journal, Jan. 20, 1912, p. 184.

Coulter, E. K.: Mentally Defective Delinquents and the Law, National Conf. Char. and Cor., 1911, p. 68.

Evans, E. G., and Dawson, M. W.: Feeblemindedness and Juvenile Delinquency, *Charities*, 1908, xx, 183.

Falconer, M. P.: Causes of Delinquency Among Girls, *Ann. Am. Acad. Pol. and Soc. Sc.*, 1910, xxxvi, 77.

Healy, W.: Factors Involved in Juvenile Delinquency, The Journal, April 25, 1914, p. 1328.

Newkirk, H. D.: Relation of Physical Defect to Delinquency, with Special Reference to Hennepin County Juvenile Court, *Bull. Am. Acad. Med.*, February, 1914.

Toeplitz, M.: Five Hundred Examinations of Nose and Throat in an Institution for Delinquent Boys, *Med. Rec.*, New York, March 14, 1914.

Frost, C. A.: Degenerate Girl, *Wisconsin Med. Jour.*, February, 1914.

Christian, F. L.: Defective Delinquent, *Albany Med. Ann.*, May, 1913.

KEROSENE THERAPY—TREATMENT OF NICOTIN HABIT

To the Editor:—1. One hears a great deal in rural practice about the therapy of kerosene. "It cures almost everything from rattlesnake bites to scarlet fever." Please discuss the physiologic action and therapy.

2. What drugs are used in the treatment of the nicotin habit, chewing, snuffing and smoking? A. C. S.

Answer.—1. Kerosene is an irritant. Its only effect would be due to the counterirritation produced by local applications for which there are much better agents.

2. The treatment of the nicotin habit is similar to that of the alcohol habit. See The Journal, June 21, 1913, p. 1933. For a description of the treatment of the cigaret habit by silver nitrate see The Journal, Jan. 17, 1914, p. 224.

ARTICLES ON TROPICAL MALARIA

To the Editor:—I desire to secure some recent literature on the treatment of malaria such as is brought to us from the Orient, which may not differ from other malaria.

W. E. Allaman, M.D., Dayton, Ohio.

Answer.—The following is a list of articles on this subject:

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Goldthwaite, R. H.: Salvarsan and Malaria, *Mil. Surgeon*, October, 1912.

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Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

STATE INSURANCE AGAINST SICKNESS

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Mike Ginski, coal-miner, had the misfortune to be hit by a rock falling from the roof of the slope where he was at work and when he was taken to the surface it was found that one of his legs was badly broken. He was removed to the local hospital and was there informed by the doctor it would probably be three months at the least before he could return to work. Now as Mike had a wife and three little children depending on him for support it would seem that that news should have caused him to worry. Such was not the case, however, and with reason, as the sequel will show. Mike was not at all indifferent to his family's welfare nor had he a bank account to draw on.

The coal-mine where this accident happened is in the state of Washington. This state has a workmen's compensation law which awarded him $2 for each working-day lost on account of his injury or $12 per week until he should be able to return to work. Mike also was a member in good standing of two fraternal orders, each of which, regardless of the number of his dependents, paid him $7 per week during the period of his disability. Thus, while his broken leg was knitting, he was receiving each week $26 for the support of his family. That was more than he had ever received for his labor underground. But what about his doctor's and hospital bills? He was in the hospital two months and under the care of a skilful surgeon. Several roentgenograms were taken and when by means of these it was found that the ends of the broken bone would not remain in apposition owing to the pulling of the patient's powerful muscles, the surgeon cut down on the fracture and united it firmly by means of steel plates. Three plaster casts had to be molded on the injured member before Mike could use it. By the time he was able to work it would seem that he might have bills to pay amounting to something like $300 for all this hospital care and medical service. On the contrary he did not have to pay a nickel.

The employees of the mining corporation for which Mike Ginski worked had for many years been organized into an association which provided medical, surgical and hospital care for themselves and their families. Every employee of the corporation *ipso facto* was a member of this association and one dollar was deducted from his wages each month and turned over to the treasurer of the association. It was out of the fund thus raised that the bills for Mike's care were paid. He was given the best possible treatment and the period of his disability was reduced to the minimum. No amount of wealth could have secured him a better result in a shorter space of time.

This was not all Mike got for his dollar. No matter what might ail him, whether it were a sore back or appendicitis, he was given all the necessary medical attention and medicines at no additional expense to himself. Should one of his little ones get sick, the association's physician attended the child throughout the illness. It cost his wife nothing to consult the same doctor concerning any of her ailments and receive treatment therefor. The only additional charges the association's physician was allowed to make were in confinement cases (for which he was limited to a fee of $10) and for treatment of venereal diseases and injuries resulting from fighting or intoxication.

Now contrast the case of Mike Ginski with that of John Smith, a well-dressed bank-clerk who lives in a city not many miles distant from the above-mentioned mining camp. Smith also is blessed with a wife and two little ones and his salary is equal to the monthly wages of the coal-miner. He is not exposed to the hazards of occupation incurred by the miner but he is just as apt to become ill. As a matter of fact, he did become ill one summer. It began with a headache for which he consulted the clerk at a corner drug-store and procured some tablets. He could not very well afford to consult a physician about such a small matter as a headache and pay $2 for what would cost him 25 cents at the druggist's. But the tablets did not stop the headache and John's appetite failed and he felt all out of sorts. His wife, becoming anxious, tried some home treatment, but without avail. He continued to grow worse and so finally, yielding to the importunities of his wife, he consulted a physician, with the result that he was ordered home and to bed. The following day he was told that he had typhoid fever and was advised to go to a hospital. So there he went.

It was three months before John Smith could resume his desk at the bank. For those three months he was without his salary. The bills for doctor, hospital care and nursing totaled $300 and meanwhile there was rent to pay and bills for groceries and fuel to meet. John was pretty badly in the hole. With the prevalent high cost of living the salary, $100 a month, did not leave much of a balance after paying for the necessaries of life, and that $400 or more of indebtedness looked like a huge mountain to remove. So John went back to work just as soon as he could. He really should have recuperated for a month in the mountains or at the seashore and would have done so had he been financially able. Poverty forces many a sick man to work when his body demands rest. It was many months before Smith caught up with his debts, and it might be added that the last one to get paid was the doctor whose faithful, kindly and skilful services had successfully carried him through his long illness. In the meantime the account with the physician had grown, for with the winter came the measles and unluckily the two Smith children caught it. Then the following spring another baby came to bless their home. This added $25 to the doctor's bill. A practical nurse for two weeks cost $30. It was necessary to have a girl to help with the housework and she cost $5 a week. Then there were the druggist's bills to pay. The filling of each prescription cost from 75 cents to a dollar.

What a contrast there is between the situations of these two men in meeting the exigencies of sickness or accident to themselves and their families! The Polish miner has all the best of it over the native American bank-clerk. Sickness and accident have no financial terrors for the miner. Simply by paying the fee of $1 per month he is enabled to meet all of the bills for doctor, hospital and drugs (with the possible exception of $10 for a confinement), and besides that, should he become incapacitated through an accident, the state pays him sufficient to keep his family in comfort. As to lodge benefits, of course, they are open equally to the bank clerk and the miner. The workingman, by means of a simple organization with the payment of a small fee, has been able to rid himself entirely of the burden, the ofttimes calamitous burden, imposed on him when sickness comes to himself or one of his family.

It is not surprising that workingmen who have learned to organize themselves in trade-unions should also unite for mutual protection against accident and illness. It is not surprising that American workingmen should be following in the footsteps of their European confrères with their Friendly Societies and their Krankenkassen. The only wonder is that they should have been so slow to imitate them. That the "sick-club" idea is rapidly taking root in the United States is not a matter for doubt. There is scarcely a city in the country in which medical societies have not issued edicts against members who accept contracts for lodge practice. The Eagles and Moose orders have been particularly active in this work. Although contracts of this nature certainly are open to severe criticism, yet it seems that able and reputable physicians can always be found to accept them.

It is the custom of large industrial corporations in all parts of the country, especially those involving the more hazardous occupations, such as mining, railroading and lumbering, to provide proper medical and hospital care for their employees in case of accidental injury. The cost of these services as a rule is defrayed from a permanent fund raised by deductions from each man's monthly pay check. Some corporations, such as the Northern Pacific Railway Company, permit their employees to administer this fund.

Through these voluntary and involuntary cooperative efforts to secure medical and hospital care at a low cost, workingmen are becoming more and more familiar with the economic value of the "sick-club" idea. They are getting rather well educated as to the power of their union organizations in bargaining with their employers. They are learning the lesson of solidarity of interest. It is easy for them, through their unions to adopt the "sick-club." The machinery of organization is already there. All they have to do is to appoint a committee to administer the sick-fund and arrange to have the monthly fees collected through the office of the employing corporation. This plan is now being followed in many mining towns on the coast in the state of Washington. There is ground for the belief that the time is not far distant when "Krankenkassen" will be as numerous in the United States as they now are in Germany and Austria. And from "Krankenkassen" to state insurance against sickness and accident such as was recently inaugurated in England is but another step.

The situation of John Smith is one big argument in favor of some such system of state sickness-insurance. The workingmen are able to secure that insurance through their industrial unions. At the other end of the social scale the wealthy have the means to command the most expert medical service and the best hospital care and nursing. Between these two extremes exists that large class, of which John Smith is offered as a type, which for want of a better term we may call the middle class or bourgeois, including the small merchants, the bookkeepers and accountants, the managers of departments and branches for large corporations, the technical engineers, the schoolteachers and college professors and the farmers. Here is a large class of the most intelligent and thrifty elements of the population, who are wholly unorganized and for whom absolutely no medical or hospital service is provided except what each individual is able to purchase out of his own income.

Of all this class the farmer is the most neglected. He is far worse off than the city dweller, whose water-supply is protected, whose milk-supply is inspected, whose garbage and sewage are disposed of, whose schools are sanitary and whose schoolchildren are given free medical and dental examinations; medical specialists of all kinds are within reach of the city clerk or bookkeeper, and hospitals and nurses are at his command. The municipality gives its citizens all possible protection against disease. The condition of the rural dweller, on the other hand, is little better than it was a hundred years ago. His water-supply is unprotected, his milk and perishable foods receive only what inspection he himself gives; his own excreta are deposited in an open privy-vault and his garbage and other refuse are thrown out on the surface of the ground; his schools are ill ventilated and improperly lighted and their sanitation is nil, while his schoolchildren grow up without any but the most haphazard supervision of their bodily health; for his medical service he is dependent on an overworked general practitioner, and for him hospital service is a luxury to be procured only in the most desperate cases. It has recently been shown by a careful social survey of certain rural districts that there is a much higher percentage of physical defectives among country children of school age than among city children of similar age.

At the meeting of the American Academy of Medicine in June, 1909, Dr. Woods Hutchinson said: "Our present system of medical attendance is a makeshift and an anomaly. Born in an emergency and tinkered up at odd times, it has never been properly planned out or thought through. It combines the maximum of expense to the patient and of loss by all sorts of accident to the physician, with the minimum of health production and prevention."

That sickness often imposes a crushing burden of financial loss on the thrifty is well known to every physician. This burden comprises not only the expense of medical treatment and nursing but the loss of wages and the temporary or permanent impairment of the patient's earning power. This loss in the end must be borne by society.

I have already cited the case of John Smith as exemplifying the situation of the middle-class people as regards the expense of medical attendance. Let me further illustrate this situation by two concrete cases out of my own experience:

Frank M. was a traveling salesman. He was buying a home in the city on the monthly payment plan. His son had just entered the state university and his daughter was in the high school. Then he became ill. His illness was chronic Bright's disease and he was incapacitated for work for months. Of course the outlook was not very favorable. His son was forced to quit the university and earn his own living. His wife secured employment in a department store to meet the expense of keeping her husband in the hospital. The house on which they were making payments finally had to be given up. Between non-employment and the cost of hospital and medical service, the home was wrecked.

The other case is that of a Slovak who for years had worked at the coke-ovens and had carefully saved his money with the hope of buying some farm land. Pulling coke out of the ovens is especially hard work, for fierce heat must be faced and hot dust and noxious gases inhaled. The Slovak was sober, thrifty and industrious. He had been married a few years but his wife had borne no children. Being anxious for a child they consulted a physician in the city and were prevailed on to submit her to an operation to remove the causal lesion. Unfortunately a fecal fistula resulted and it was nearly a year before the woman could leave the hospital. Other operations were performed in an endeavor to cure the fistula but without result. Needless to say, the woman did not become pregnant. All of this cost the Slovak workingman about $1,000, which more than wiped out his savings, and he had to begin again to save for the long-deferred purchase of the farm.

The fee system of remuneration for medical services is another potent argument in favor of state sickness-insurance. It is arbitrary, unreasonable and unsatisfactory and is not based on the value of the services rendered; it is utterly impossible to express the value of professional service in terms of dollars and cents. A physician who makes an unvarying charge of $2 for each visit to a sick person, regardless of whether it be to treat a sniveling coryza or to avert impending death from acute dilatation of the heart, merely admits the futility of an attempt to state the exact value of the work performed. As a matter of fact, it is doubtful if any physician pretends to stick to a certain schedule of fees. He uses his own judgment in making his charges. He takes into consideration the amount and character of the work performed and the ability of the patient to pay for it. Doubtless there are some unscrupulous practitioners who take advantage of this fact and demand more than the actual value of the services; but these are exceptions that only prove the rule. In the vast majority of cases the physician is the loser. Probably 90 per cent. of physicians do not receive one-half of what they actually earn, and even that statement may seem to some to be too moderate. The majority of practitioners do not even collect 25 to 50 per cent. of what they charge on their books. It is notorious that doctors' bills are the hardest to collect. It was stated in the report of the Judicial Council to the House of Delegates last June that "hardly more than 10 per cent. of the physicians in the United States are able to earn a comfortable income." What an enormous amount of charitable work the medical profession is doing!

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State sickness-insurance would not only be a boon to the man of small income and large family (the usual combination) but it would greatly increase the fixed income of the large part of the medical profession. At the same time it would relieve the physician of the perplexing and disagreeable task of bill-collecting. In England the national insurance law has, in the first year of its operation, added from $750 to $2,000 to the annual incomes of the physicians who are working under it. One of the principal reasons why it is hopeless to wage war against contract practice is that it provides for a fixed and certain income and there are no unpaid bills to collect. All of the work done is paid for, no matter if some may argue that the pay is inadequate. These two facts make a strong appeal to the average physician. An advertisement in THE JOURNAL offering a contract practice with a fixed income of $300 a month and all expenses paid, would bring a bushel of replies.

One of the evil results of this uncertain and unreasonable system of medical rewards is that a large part of the public avoids consulting a physician until compelled to do so by pain or misery for which no relief can be found otherwise, or is impelled to do so by fear aroused by symptoms associated in the popular mind with serious disease.

A few days ago I happened to be standing in a city drug-store when a woman was asking the clerk for some medicine for her baby.

"I want something for the cramps," she explained. "Please give me something that won't hurt him but that will surely stop the cramps."

Now it was very evident that it was not medicine but good medical advice that she needed for her child. It must be that a vast amount of this counter prescribing is being done by druggists. It is easy to understand the reason. When a man has a headache he will consult a druggist rather than pay a doctor $1.50 for a prescription and then 50 cents or a dollar to have the prescription filled. If a child in the home becomes ill the mother is apt to use "old women's" remedies or consult a pharmacist rather than incur the expense of a physician who will charge $2 for his visit and perhaps write a prescription that will cost from 50 cents to a dollar to have filled. The headache may be the first symptom of serious disease, but it is not brought to the notice of a physician until all the drug-store nostrums have been tried without avail. The little child may have a diphtheria which is treated at home as a sore throat until all the rest of the family and a large part of the neighborhood have been infected.

The fear of the expense of medical treatment is also largely responsible for the patent-medicine evil. Many a man with a sore back decides that he has kidney trouble and purchases one of the innumerable nostrums advertised for this imaginary ailment. Could he have consulted a physician at small cost he would have learned the true nature of his trouble and have received rational treatment. There is no way of telling how many serious diseases are neglected in their incipient stages because of this all too prevalent habit of self-doping, to say nothing of the millions of dollars wasted on worthless nostrums.

If protected by sickness-insurance people are apt to consult the physician about their slightest ailments. They will go to him with their headaches and backaches, their cramps and constipation, their coughs and colds. Often trivial symptoms will thus lead to the discovery of incipient serious disease and it will be possible for the physician to take timely measures to prevent the spread of contagion, to institute proper remedial treatment and to instruct the patient how he may avoid chronic debilitating illness or early death. It will then be possible more nearly to approximate that medical ideal of eliminating preventable diseases and to advance toward that millenium when old age will be the only cause of death. Under such provision for medical attention its beneficiaries should soon become so well educated as to the value of disease prevention that they will submit themselves and their children for an annual physical examination by the physician, just as they now have their automobiles overhauled. Thus unsuspected abnormalities of structure or function may be discovered, defects of eyes, teeth, nose, ear and throat may be pointed out, beginning lesions of heart, lungs, stomach, liver and other internal organs may be detected, deficiencies of musculature or of mental development may be found and then the patient may be instructed how he may correct these defects, rid himself of these abnormalities and by proper hygiene and proper habits secure perfect health and ward off threatening disease.

In all social legislation the United States is following in the footsteps of Europe. Postal savings-banks, parcel-post and state insurance against industrial accidents all have been adopted after having been on trial for many years in European countries. It is only a matter of time when we will also have state insurance against sickness, non-employment and old age.

About 15,000,000 persons are now provided by the government with all necessary medical and hospital care and medicines. About 20,000 out of the 22,500 physicians in Great Britain are employed in this work and the government has paid them $20,500,000 or an average of $1,150 for each physician. Germany's new industrial insurance law, which went into effect on January 1, provides medical service and medicines for about 20,000,000 persons, in some districts covering from 92 to 95 per cent. of the population.

There are many indications that we are rapidly approaching the time when similar government insurance will be adopted in the United States. Many states already have adopted industrial insurance against accident and before many years it will have been adopted by every state in the union. The next step will be that which already is being vigorously advocated in the state of Washington, to provide for medical and hospital care for those injured in industrial accidents. It will then be but a short step to provide insurance against sickness as well as against accident and to extend the benefits of the act to all persons whose incomes fall below a certain limit. State medicine is the goal toward which we are traveling apace. We are more and more realizing that the health of the nation is the natural asset in greatest need of careful conservation. The prominence given such legislation as that covering child-labor, hours of labor for women, widow's pensions, the causes of poverty and non-employment, factory inspection, etc., reflects the intense popular concern for the physical well-being of the nation.

There is a clinic at Rochester, Minn., famous the world over. It is a Mecca for thousands of afflicted ones. The Mayos there have set up a supreme court of diagnosis and prognosis. One can accept their verdict as practically final. How has the Mayo clinic come to have such great authority? By reason of the fact that it utilizes every means and method known to science to arrive at a correct diagnosis and to establish a reasonable prognosis. Not a single part of the anatomy or physiology of the patient is overlooked. Every known test is made to ascertain any abnormalities of function or structure that may exist.

Such a clinic as this should be within the reach of every man, woman and child in the United States. The people, through their governmental organizations of municipality, state and nation, can establish such clinics and maintain them by general taxation. And the day will surely come when the people will do it. When that day comes we shall also have a system of state insurance against sickness such as is now operative in Germany and England.

Criminals and the Antisocial Diathesis.—There is no such thing as a distinct criminal type, and a careful study of anthropology does not justify the conclusion that there is. Our prison population, made up as it is of the weaklings of society—the flotsam and jetsam—who are incapable of and unable to maintain their places in the competitive struggle for existence, are not criminals in the deterministic sense, but they are necessarily of that diathesis from which we may expect, to a greater or less degree, antisocial attitudes.—D. C. Peyton, M.D., *Jour. Ind. State Med. Assn.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 14. Chairman, Dr. W. H. Sanders, Montgomery.

CONNECTICUT: New Haven, July 14-15. Sec., Dr. Chas. A. Tuttle, New Haven. Homeopathic: New Haven, July 14. Sec., Dr. Edwin C. M. Hall, New Haven. Eclectic: New Haven, July 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

INDIANA: Indianapolis, July 14-16. Sec., Dr. W. T. Gott, State House, Indianapolis.

MASSACHUSETTS: Boston, July 14-16. Sec., Dr. Walter P. Bowers, Room 159 State House, Boston.

NEW MEXICO: Santa Fe, July 13. Sec., Dr. W. E. Kaser, East Las Vegas.

OKLAHOMA: Oklahoma City, July 14. Sec., Dr. John W. Duke, Guthrie.

SOUTH DAKOTA: Deadwood, July 14. Sec., Dr. Park B. Jenkins, Waubay.

VERMONT: Burlington, July 14-17. Sec., Dr. W. Scott Nay, Waterbill.

Montana April Report

Dr. William C. Riddel, secretary of the Board of Medical Examiners of Montana, reports the written examination held at Helena, April 7-9, 1914. The number of subjects examined in was 10; total number of questions asked, 50; percentage required to pass, 75. The total number of candidates examined was 41, of whom 25 passed and 16 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
University of Colorado	(1912)	76.7
Chicago College of Medicine and Surgery	(1910) 77.1; (1913)	84.5
Hahnemann Medical College and Hospital of Chicago	(1913)	75.2
Northwestern University (1898) 77; (1900) 83.5; (1903) 85.1; (1904) 75.4.		
Rush Medical College	(1896) 76.4; (1912) 80.6; (1913)	82.8
State University of Iowa, Coll. of Hom.eo. Med.	(1899)	77.7
University of Kansas	(1906)	84.8
Kentucky School of Medicine	(1898)	83.9
Harvard University	(1893)	79.1
Minnesota Hospital College	(1887)	82
University of Minnesota	(1909)	79.5
University Medical College, Kansas City	(1910)	75
John A. Creighton Medical College	(1913)	75, 79.8
Jefferson Medical College	(1909)	75.3
University of Tennessee	(1913)	76.7
University of Toronto	(1906) 77.9; (1910)	78.1
McGill University	(1896)	84.7
FAILED		
Rush Medical College	(1888)	64
Medical College of Indiana	(1900)	73.9
Keokuk Med. Coll., Coll. of Physicians and Surgeons	(1908)	47.7
State University of Iowa, College of Medicine	(1905)	73.8
Cioux City College of Medicinie	(1905)	54.2
University of Kansas	(1906)	66.3
University of Louisville	(1908)	62.9
Kansas City Medical College	(1905)	71.9
Marion-Sims-Beaumont Medical College	(1903)	62.4
John A. Creighton Medical College	(1909)	71.4
Ohio-Miami Medical College	(1911)	70
Medico-Chirurgical College of Philadelphia	(1908)	71.3
Marquette University	(1913)	68.5, 68.8
Milwaukee Medical College	(1910)	73
Wisconsin College of Physicians and Surgeons	(1905)	63.9

Rhode Island April Report

Dr. Gardner T. Swarts, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, April 2-3, 1914. The number of subjects examined in was 7; total number of question asked, 70; percentage required to pass, 80. The total number of candidates examined was 7, of whom 6 passed and 1 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Georgetown University	(1909)	85.5
Harvard University	(1910)	90.5
Tufts College Medical School	(1913)	82.5
Dartmouth Medical School	(1910)	82
Columbia University, College of P. and S.	(1913)	88.2
Jefferson Medical College	(1912)	80
FAILED		
Laval University	(1912)	75.6

Book Notices

PHARMACOLOGY, CLINICAL AND EXPERIMENTAL. A Groundwork of Medical Treatment. Being a Text-Book for Students and Physicians. By Dr. Hans H. Meyer and Dr. R. Gottlieb, Professors of Pharmacology. Authorized Translation into English by John Taylor Haldey, M.D., Professor of Pharmacology, Tulane University. Cloth. Price, $6. Pp. 604, with 62 illustrations. Philadelphia: J. B. Lippincott Company, 1914.

Two distinguished European pharmacologists have each written separate chapters in this work, but with such cooperation and collaboration as to form a homogeneous book. Pharmacology is regarded as a division of biology; those reactions have been chosen to illustrate it which have a relation to the cure of disease and may form the basis of "scientific drug therapy." In making this limitation the authors bring their subject into close relation to pathology and retain its significance for clinical teaching and medical practice. They have divided the drugs into two classes: organotropic, those which influence organs or their functions, and etiotropic, those which act on the causes of disease. Pharmacologic actions are discussed separately for each organ or functional system. By taking first the action of drugs on simple tissues such as voluntary muscle, the opportunity is afforded to develop the principles of the science gradually to suit the advancement of the student. By arrangement according to functions, the drugs of a group can be compared and the advantages of each pointed out. To be sure, this necessitates in many cases a consideration of the same drug under several different headings.

The first chapter deals with curare on account of its practical limitation to action on a single tissue, the voluntary muscles. To this is added a brief discussion of the nature of pharmacologic actions. The second chapter deals with the central nervous system. A single stimulant drug is described at considerable length, and this is followed by a general consideration of the chemical properties of alkaloids and a discussion of other stimulants. The actions are described fully but clearly and are illustrated by excellent diagrams. Each article is followed by a very full bibliography. The therapeutic sections deal largely with general principles. There is no detailed posology. A discussion of the size of the dose as affecting the action of the drug is given, but there seems to be no mention of the pharmaceutical preparations. Proprietary preparations receive comparatively little notice, but there appears to be a marked disparity in the space allotted to different remedies of this class. Thus digalen is dismissed with two sentences in small type, while digipuratum receives a paragraph of the larger type. Gottlieb says, "According to some observers (Höpffner) this preparation disturbs the stomach less than all other digitalis preparations of equal physiologic activity." There is a peculiar disagreement between the translator and this author. In discussing this proprietary (digipuratum), quite optimistic views are presented; this is quite natural since Gottlieb himself is the originator of and is interested in the preparation, but the translator evidently has forgotten this, and in a footnote calls attention to the laboratory investigations of Hatcher "which have clearly demonstrated that the nausea and vomiting produced by digitalis is usually the result of its action on the vomiting centers, and as the desired effects on the circulation often manifest themselves only with doses which also produce these undesirable effects, one must accept with extreme caution the claims made for any preparation of digitalis or any of its group that it does not cause gastric disturbances."

The translation is in general good, and the translator has added some valuable comments which add facts or correct misapprehensions liable to be produced by the text. Some minor inaccuracies and inelegancies of the translation or the text should be corrected in the next edition. The translator has the habit of using the obsolete expression "combust" for oxidize or burn, which is, at any rate, rather disquieting. On page 38 the statement is made that "0.02 gm. of Pantopon corresponds to about 0.1 gm. morphin

hydrochlorid." In this case the amount of morphin meant was evidently 0.01 gm. since Pantopon contains 50 per cent. of morphin. This work is a very valuable and welcome addition to pharmacologic literature. The physician who bases his practice on the proved action of remedies as learned from such a book may use fewer books, but he is sure to use them with a certainty and efficiency which will greatly enhance his success.

HANDBUCH DER TUBERCULOSE. Herausgegeben von Prof. Dr. L. Brauer, Hamburg-Eppendorf, Allg. Krankenhaus, Dr. G. Schröder, Dirigierender Arzt der neuen Heilanstalt für Lungenkranke zu Schömberg, O.-A. Neuenburg, und Dr. F. Blumenfeld, Arzt für Nasen-, Hals- und Lungenkrankheiten in Wiesbaden. In 5 volumes. Volume 1. Paper. Price, 35 marks. Pp. 580, with 108 illustrations. Leipsic: Johann Ambrosius Barth, 1914.

This is the first part of the first volume of a thorough exposition of tuberculosis to be complete in five volumes. The work is really a second edition of the "Handbook of the Treatment of Chronic Pulmonary Tuberculosis," by Schröder and Blumenfeld, which appeared a decade ago. As the authors of that work found that in the attempt to lay a thorough foundation for treatment, they had laid themselves open to the criticism of writing a handbook of pathology as well as of treatment, they have avoided such criticism in the present edition by making the title cover the entire field of tuberculosis, and the better to accomplish their more comprehensive aim they have associated with themselves the noted investigator of the tuberculosis problem, L. Brauer of Hamburg. The list of collaborators includes forty-five names of men prominent in Germany, Denmark and Holland. About forty pages are devoted to the history of tuberculosis. The changes of theory, advance in diagnosis and the variations in treatment are presented. In a monograph of about one hundred pages, Tendeloo discusses the pathologic anatomy of tuberculosis. Much describes the germ of the disease and the subject of immunity. Römer describes the channels of infection. Martius discusses predisposition and individual prophylaxis, and Gottstein epidemiology. Dammann discusses the campaign against tuberculosis and Kirchner its social relations. The work will be of value mainly to those paying special attention to tuberculosis. To such it seems safe to say this work will be invaluable. It is to be hoped that it may be translated into English.

Medicolegal

Provision for Revocation of Licenses for Unprofessional or Dishonorable Conduct Construed and Applied

(*Forman vs. State Board of Health* (Ky.), *162 S. W. R. 796*)

The Court of Appeals of Kentucky affirms a judgment dismissing the plaintiff's petition to enjoin the defendant board from proceeding to determine whether his license to practice medicine should be revoked, on the ground that the statute under which it was acting was void. The court says that the statute prescribes three specific grounds on which a physician's license may be revoked. These are, briefly: (1) fraud in obtaining the certificate, (2) the commission of a criminal abortion or the conviction of a felony involving moral turpitude, and (3) chronic inebriety; then, "(4) or other grossly unprofessional or dishonorable conduct of a character likely to deceive or defraud the public." The whole of the charge against the plaintiff was based on this clause, which must be read in connection with the preceding three. Some force must be given the word "other" and the word "dishonorable," which were not in the former statute that was held invalid because it prescribed no standard by which unprofessional conduct was to be measured. Evidently the word "dishonorable" was added to qualify the word "unprofessional," the two words meaning "unprofessional conduct which is dishonorable," and these words are qualified by the word "other," which must mean that the unprofessional dishonorable conduct referred to is other than that above specified. The well-settled rule in the construction of statutes is that where certain things are specified, and then a general expression is used in referring to other things, the other things must be of like character with those named. Two of the things above named being fraud in obtaining the certificate and the conviction of a felony involving moral turpitude, the grossly unprofessional and dishonorable conduct referred to in Clause 4 must be of like character; that is, the conduct must be fraudulent and must involve moral turpitude; for, unless the statute is so construed, proper effect will not be given the word "other," and when it is so construed it erects a definite standard by which the board is to be governed, to which every member of a learned and honorable profession should conform, and he may know in advance that he should conform to this standard. Similar statutes, applicable to lawyers, dentists, and men of other similar professions as well as physicians, are in force in a number of states. Such statutes have generally been upheld as a valid exercise of the police power to protect the public from fraud and empiricism.

So much of the board's complaint as showed that Dr. Forman aided one Whittman in conducting the "Advanced Medical Science Institute," and practiced medicine for the corporation for hire in its name, showed a commission of a public offense by Dr. Forman, but not an offense involving moral turpitude. While it is unlawful for a physician to practice medicine in any other name than his own, and he may be punished for doing so, his license may not for this be revoked, as not every unlawful act is ground for the revocation of a license. There is nothing in the Kentucky statute regulating the advertising which a physician may properly do, and, though he may in this violate the physician's code, it will constitute no ground for revoking his license unless his conduct it dishonorable, fraudulent, and involves moral turpitude. Whether the physician's acts were sincere or fraudulent and done for the purpose of defrauding the public is a question to be decided by the board on all the facts.

Charging Ten Dollars An Hour for Detention Services

(*Merchants' Collection Agency vs. Gopcevic* (Cal.), *137 Pac. R. 609*)

The District Court of Appeal of California, Third District, says that the plaintiff, in suing on a claim assigned to it, alleged that the defendant became and was indebted to its assignor for professional services rendered by him in the amount of $6,962.50, etc. The record was quite brief as to the evidence. The inference from the assignor's testimony was that the services were performed under an express agreement with the defendant for the payment of $10 an hour, which the defendant denied, and the trial court rejected the theory of an express promise to pay $10 an hour or $240 a day. Of course any conscientious judge would require the most convincing evidence of such a contract before he would allow such an enormous charge. Nor is it likely that he would hold $6,960 to be a reasonable charge for the services, even of a physician, for twenty-nine days. But it was not correct to say that there was no evidence of the value of the services. The physician testified that "detention fees were $10 an hour," and that, in response to the defendant's statement, "I want you to stay right here and not go away," he replied: "Mr. Gopcevic, that is a very expensive proposition. The lowest charge I can make according to the fee bill is $10 per hour for detention." It is, of course, a fair presumption that the fee bill is an expression of the opinion of the profession that such services are worth that amount. It would be at least a legal inference from the physician's testimony that his services were worth $10 an hour. This would manifestly support a finding of a less amount, namely, the sum of nearly $1.30 per hour. The promise implied by the law is to pay the reasonable value of the services; but the court's conclusion being based on an implied contract, it was not proper to allow interest before judgment. Wherefore a judgment rendered in the plaintiff's favor for $480 and $125.55 interest is affirmed as to the former, and modified by striking out the latter sum for interest.

Society Proceedings

CONNECTICUT STATE MEDICAL SOCIETY

One Hundred and Twenty-Second Annual Meeting, held at New Haven, May 20 and 21, 1914

The President, DR. D. CHESTER BROWN, Danbury, in the Chair

Diagnostic Methods in Gastro-Intestinal Diseases

DR. L. M. GOMPERTZ, New Haven: A man, in August, 1909, complained of symptoms that led to a diagnosis of gastric ulcer. He was treated for a short time and felt so much better that he failed to return for further treatment. May 11, 1914, he came back with an aggravation of the symptoms previously noted, and with loss of weight. A test supper was given him, and an examination of the contents of his stomach made. The test supper contained rice, meat, raisins and anything else he desired. In the morning, a tube was passed into the fasting stomach. Many physicians are unable to get a fasting stomach's contents. It is very simple. Suppose the patient has a dilated stomach; he leans forward, you compress the tube, and anything that may be in this tube comes out. No matter how little is obtained, it is enough for microscopic examination. We obtained a little of the contents of the stomach of this man which showed the presence of sarcinae and food-remnants. Hydrochloric acid must be present, in order to favor the growth of sarcinae. A diagnosis of cicatricial ulcer was made. Two roentgenograms were made; one shows the tube going down to the pylorus and then stopping. There is an abrupt ending of the bismuth meal at the pylorus, due to the cicatrix of an ulcer; so we know it is not a malignant growth.

Another patient, seen at odd times since 1908, when any excitement occurs has a spell of vomiting, and cannot eat anything. Everything comes up almost immediately after it is swallowed. A lot of mucus and food is vomited. In attempting to pass a bougie into her stomach, we encountered an obstruction just above the cardia, 42 cm. from the mouth. The treatment then was passing bougies, and giving tincture of belladonna and bromids. The patient recovered. Two years later she had another attack and immediately after it she had spasm. She has had these spells so often, coming on when there was any excitement, that there is dilatation of the esophagus above the cardia.

A third case shows very nicely the transition of a non-malignant growth into a malignant growth. The patient came to me June 20, 1907, with symptoms of ulcer on the cardiac end of the stomach. He had increased acidity. I treated him and he improved and gained weight. I did not see him for a long time after that. He came back in 1908 with a different history. His appetite was good, but he could not get food down. His bowels were constipated. I passed a bougie and met an obstruction right at the cardia. At times, this obstruction lets up a little, so that food can go down through it. It is positively a malignant case, and the patient still has the obstruction.

A fourth case was that of a young woman whom I saw eight years ago for the first time. The clinical history, chemical examination, etc., showed the case to be one of ulcer. She was treated for a month and I told her she needed an operation. After that I did not see her until a year ago, when she returned and said that she was ready for an operation. In passing the stomach-tube I found hydrochloric acid, sarcinae and food-remnants from the night before. I made a diagnosis of cancer of the pylorus, which was wrong. The reason for the mistake was that when the stomach-tube was passed it reached the obstruction in the center of the stomach instead of the pylorus. Just before the operation I had a roentgenogram made, not suspecting the presence of an hour-glass stomach. An end-to-end anastomosis was made and two months after the operation, the stomach was smaller, but normal in position. I have seen the girl within two weeks, and she is well.

The fifth case was that of a woman who had stomach symptoms and evidently a gastroptosis. When first passing the tube I thought she had an hour-glass stomach, but the next time I passed it into the stomach I told her she should be operated on. At the operation multiple ulcers were found. The ulcers were taken out and the stomach was brought into proper position by end-to-end anastomosis.

Bone Grafting

DR. E. H. ARNOLD, New Haven: I have done bone-grafting in almost every situation in the body. I have grafted in club-foot, and have done two operations in the tuberculous tarsus by inserting pieces of bone. I have grafted once on the tibia for an osteomyelitic defect, and I have grafted in the knee. This boy had a tuberculous knee for three or four years. He had it treated elsewhere by scraping, brace, and plaster of Paris; but the process of destruction went on. I did a resection of the knee, cutting away as much as I could. The result was that he had some motion in the knee. He went back to his trade three months after the excision. As one of the sinuses still persisted, I put in a bone-graft at the front of the knee, in order to do away with the movement. I have succeeded in this, but have not stopped the discharge so far. A tuberculous knee does not make bone, and the best we can hope for is a fibrous union. No brace will secure absolute immobility, and a child cannot be kept in plaster always.

In another case, I opened the hip and inserted two grafts. One of these sloughed out, but the other remained in. It stimulated bone-making to such an extent that I obtained a firm bony union. The child now walks without a brace.

The next group in which I grafted consisted of cases of sacro-iliac and sacrolumbar disease. In one case I operated, inserting a graft shaped like an inverted Y in the lower lumbar and upper sacral region. That did away with the joints, and I have secured immobility. I have grafted into the cervical region twice, and into the elbow for ununited fractures. I have also grafted into the shoulder, inserting the graft right into the glenoid cavity, and it has held, so far.

Experiments in Nutrition

DR. T. H. OSBORNE and DR. L. B. MENDEL, New Haven: The length of life in the rat is not more than 1,000 days on the milk food. The rat will grow for a time on starch and then decline, after forty or sixty days. The foods which we use are water-free, and are mixed with lard. The rats grew on this food when it was mixed with protein, and failed to grow when it was not. On certain foods there was practically no growth. All that was necessary in order to have growth start again was to change the diet from an imperfect to a perfect protein. Some proteins are enough for maintenance, but not for growth. When the animals declined, all that was necessary to make them come up was to substitute butter, butter-fat or cod-liver oil for a little of the lard. Instantly there was perfect recovery and continuation of growth. The same is true of egg-fat. Solid fats sometimes failed to nourish the animals, but they quickly recovered when that fraction of the total butter was substituted by the butter oil. Most of the proteins that we have at our disposal to prepare these foods contain all the amino-acids, and are complete proteins. Others lack one or more amino-acids, and are incomplete proteins. Using these enables us to determine whether or not the protein that is lacking is of importance for growth and maintenance. The tryptophan group is essential for maintenance, for without it the animal dies in a comparatively short time. The lysin group is essential for growth, but not for maintenance.

This brings up another question, How long can an animal be stunted and still recover the power to grow? They go down hill on zein alone, are maintained on zein with tryptophan, and have growth by the addition of lysin. Another question is, Can we supplement the deficiency of the protein by adding another protein to it; and how well can that be done? If the proportion of casein is doubled, up goes the growth. One-fourth of destin is insufficient for growth; one-half is nearly sufficient, and three-fourths is sufficient. The different proteins have very unequal value. Milk-protein contains lysin, and corn-protein does not. The addition of lysin makes it all right. We added cystin to a diet of 9 per cent. casein, on

which the rat was growing slowly, and it improved the growth. Here is an illustration of a rather unique experiment—an animal that was kept for 168 days on a food that did not contain lysin, and so was inadequate for growth; yet it was able to give birth to young, and to produce milk for them; but it did not recover its original weight. The animal was an adult. Its young were produced at the expense of the mother's life.

When we talk of anorexia as being due to sameness of food, we are probably in error. It is due, rather, to individual social conditions. One can eat the same thing, day after day, if one has the right diet. As soon as one has defective food, however, anorexia is produced. When we give them a defective food, the rats stop eating. The malnutrition, then, is the cause of the anorexia, and not vice versa.

Transplantation and Explantation of Tissues and Organs

DR. ROSS G. HARRISON, New Haven: These experiments were made with embryos. They are operated on under a binocular microscope, and the parts are brought together and held in position by means of wires. They have lived for weeks after the operation, and have grown remarkably. It is quite possible to unite organs of different species together. Very often a union between parts of different species is very useful for experimental purposes, because the fact that the cells of the two species are of different color enables one to follow the development of the movements of the cells.

My early work in this direction was done by uniting relatively large pieces; but more refined methods have since been devised, whereby it is possible to use very much smaller parts. If older embryos are used and it is necessary to give an anesthetic, about 2 parts of chlorbutanol added to 10,000 parts of water will stop movement. The animal can be kept in this for a week, and will undergo its whole development almost normally in this solution.

It was a great surprise to me to find that if the little disk of tissue that represents a limb be turned around 180 degrees in transplanting, we still have a perfectly normal limb, developing in a perfectly normal position. Therefore, the position must be determined by some factor in the body of the embryo as a whole. Likewise, in a great majority of cases, the interchange of right and left has no effect.

As to the question of explantation, whereby the parts are transplanted to some medium outside of the body: we know that the parts of animals may live for some time after the death of the organism as a whole. It is not strange, then, that muscles and nerves should survive outside the organism with which they have been connected, and undergo development as well. Muscle-tissue that is entirely undifferentiated when taken out of the embryo will differentiate without the presence of any other tissue whatever. Other tissues will also develop normally. The development of whole embryos has been shown by this method. Even the mammalian embryo will undergo at least a portion of its development. A method has been devised whereby it is possible to obtain large quantities of plasms with which to carry on experiments concerning these processes of growth. Tissues have been grown, not only in this plasma medium, but also in a saline medium. The latter is not so good as the former, but adding sugar or other nutritive material improves it.

As a usual thing, tissues cultivated outside the body retain their specific function, although the gross morphology may not be retained. The degree and kind of solid support has considerable effect on the movement of the cells.

Apparatus for Suction and Aspiration in the Treatment of Empyema

DR. J. M. FLINT, New Haven: We have had a series of forty cases of empyema of various kinds and types—the pneumonic, the hematogenous, and one or two interesting cases in which the empyematous process was secondary to abdominal infection. I mention this particularly, because of the recent discovery of a group of lymphatics passing through the diaphragm, and ramifying with the plexus on the surface of the pleura—which gives a definite anatomic route for infections occurring secondary to abdominal conditions, of which phrenic abscess is the most common. We have a method of treatment that we have found eminently satisfactory. Five or six years ago we devised an empyema tube, which has given most excellent results. It is like an ordinary empyema tube, but has a large rubber dam. Absolutely air-tight openings can be made in the chest wall, by which the normal tension can be replaced. The use of the Politzer bag is impossible in cases in which empyema is associated with bronchial fistula, because the leak through the bronchus causes the bag to collapse. We devised a water vacuum to obviate this difficulty. Thus we are able to suck through the empyema tube enough air to overcome the ordinary leak and still keep a partial vacuum in the empyema cavity.

(To be continued)

NEW YORK ACADEMY OF MEDICINE

Meeting held May 21, 1914

L. EMMETT HOLT in the Chair

The Cultivation of Human Cancer-Cells in Vitro

DR. M. T. BURROWS: During the past few months I have been testing a considerable number of human tissues by the culture method. The tests have been made either autoplastic or homoplastic. The specimens included lymphomas, a fibrosarcoma of the axilla, a recurrent chondroma of the femur, two melanomas, several carcinomas of the breast, a thyroid sarcoma, and adenocarcinomas of the lymph-nodes of the neck and groin, cystomas, and a recurrent adenocarcinoma of the ovary. When possible the tissue in small fragments was placed in plasma as soon as obtained. The plasma had in most instances been used pure. In other instances it had been diluted one-half with isotonic sodium chlorid solution. Control cultures of normal tissues of dogs and cats were prepared in a similar manner. About the fragments of the lymphomas, the chondroma, the fibrosarcoma and normal connective tissue taken from the same individuals, the reaction in the plasma was similar to that generally seen with the growth of similar tissues of other animals. The clot contracted, showing pitting of the free surface about the tissue border. The medium became more clear in this region. No extensive or disorganized accumulation occurred. Fragments of fibroma lived for eighteen days following several transplants. From the fragments of the lymphomas both round and spindle cells migrated into the plasma. The fragments of the carcinomas had varied considerably in their ability to survive in the cultures. In but two cases had actual growth of the cancerous element been observed. In the other cases a rapid autolysis with or without fibrin digestion was observed. This autolysis was most marked about the carcinomas of the breast and thyroid and one of the ovarian tumors. The medium was digested slowly about many of the fragments of the melanomas.

Influence of Diet on Transplantable Sarcoma in Rats

DR. S. P. BEEBE: We found that if carbohydrates were entirely eliminated there was a smaller percentage of positive takes; the tumor grew more slowly and a larger percentage showed complete regression as compared with control animals on a full diet. In one experiment 26 animals were placed on a special diet and 26 on a full diet. They were all planted with the same tumor the same day. Every animal planted took the tumor. Of those animals on a special diet which contained no carbohydrate, 2 died from the tumor, 4 died from accident or unknown cause and 20 showed complete regression of the tumor. Of the 26 animals on the control diet containing carbohydrate, 24 died from the tumor and 2 recovered. In order to obtain such effects it was found necessary to prepare the animals by feeding them on a special diet for some time before planting the tumor. Our experiments have shown that butter is a very effective stimulant to the growth of the buffalo sarcoma. A much larger percentage of animals were killed by the tumor when the animals were fed on butter. In some instances at the time of death of the animal, the tumor mass weighed two and one-half times as much as the rest of the animal. In one instance the weight of the tumor dissected out at the

time of death was 130 gm. compared with 51 gm. of the body of the rat. We have made some experiments with diet containing certain proteins and we have found that it is impossible to maintain an animal in a fairly satisfactory condition of nutrition and yet prevent the growth of the tumor.

The Sugar-Content of the Blood in Cancer

DR. S. R. BENEDICT and DR. R. C. LEWIS: Rats with transplantable sarcoma when fed on a non-carbohydrate diet showed an increased resistance to tumor growth, provided there had been a long preliminary period of non-carbohydrate feeding. There were a fewer number of takes, a greater number of retrogressions, and a slower rate of growth of the tumor in rats on a non-carbohydrate diet than in those in which a mixed diet was employed. When the diet contained carbohydrate, the tumors grew luxuriantly. Far more striking results were obtained on phloridzinized tumor-bearing rats. The animals were positively hopeless from the point of view of spontaneous retrogression. Almost at once after the injection of the phloridzin the tumor began to soften. This was followed by a breaking down of the growth and finally by a sloughing of the entire mass. In these phloridzinized rats there was a condition of complete carbohydrate starvation in that not only were the carbohydrates of the diet excluded but also the carbohydrate arising in the body from metabolism of proteins was eliminated in the urine. This result might be due to a general malnutrition, which, in turn, was followed by the effect on the tumor; or it might be that the carbohydrate *per se* was necessary for the tumor growth. In our study of the blood-sugar content of cancer patients we have developed a simple method of blood-sugar determination which offers certain advantages over the older methods; one marked advantage is that only a very small amount of blood is required. We have examined the blood of fifty-three hospital patients suffering from malignant growths, making about 200 examinations in all. No special relation between the pathology of the growth and the blood-sugar content has been found, but during more severe stages of malignant growth there was certainly a marked hyperglycemia.

Treatment of Cancer by Electrical Methods

DR. ARTHUR F. HOLDING: The electrical methods employed in my series of cases were Roentgen deep therapy, effulguration (de Keating-Hart), desiccation (Clark) and thermopenetration. These therapeutic agencies were combined with surgery, radium, toxins and vaccines, when such adjuvants were indicated. The results were due not so much to any originality of method as to the correlation of very excellent methods. Incipient surface cancers can be cured. If they are superficial, physical methods should be employed. These in the order of their preference, are massive doses of Roentgen rays, desiccation, radium and destructive caustics, provided the more expensive equipments are not available. Surface cancers, if tending to extend into the deeper structures, demand surgical treatment, but should also be treated by preoperative massive doses of Roentgen rays, effulguration at the time of operation, and postoperative deep Roentgen- or radiotherapy. Beginning cancer of the gastro-intestinal tract can be diagnosed with accuracy by recently improved Roentgen-ray methods. Inoperable malignant conditions cannot be cured by any method of treatment as the ultimate prognosis is 100 per cent. bad. The methods advocated are very expensive, and hence, if the work is to be continued, sufficient money must be raised to carry it on. This means for institutions proper endowment and for individuals adequate fees.

General and Experimental Therapeutics in Cancer

DR. RICHARD WEIL: In undertaking the treatment of any case of cancer we have accepted as axiomatic the principle that operation, whenever available, is the method of choice. This rule applies not only to all cases in which operation offers a hope of radical removal of all traces of the disease, but also to those border-line cases in which radical removal is excluded by anatomic conditions. In all cases of both groups we have made a practice of reenforcing the operation by supplementary measures in order to obviate the possibility of implantation recurrence, as by an immediate and thorough fulguration of every recess of the wound. This procedure was associated with no disadvantage of any kind that we have been able to discover. For a varying time after the operation the site was subjected to intensive Roentgen irradiation. In addition we have used the operative procedure as an adjuvant to other measures and, finally, we have used it in combination with other modes of attack, as, for instance, radium. The physical methods of treatment have been employed as extensively as possible. It might be said of both operative and the physical modes of attack that their effectiveness is sharply circumscribed and local in character. In addition to these we have attempted to develop the metabolic treatment of the disease. We have studied the effects of colloidal solutions of a series of metals, including mercury, arsenic, copper, lead and selenium, on human cancer. None of these substances is actually toxic to the cancer-cell, and we have therefore discarded their use. We have also studied the localization of a large series of synthetic dyes in rat-tumors, and although it has not been possible to discover any dye possessing a distinct affinity for neoplastic tissue, it was found that certain dyes of the diazo-group lodged in larger amounts and remained for much longer periods in the tumor-tissue than in the normal tissues of the body. The use of toxins, as elaborated by Coley, is to be regarded as a form of chemotherapy, even though the chemical constitution of the agent is entirely unknown. Closely related to the chemical methods is the attack on cancer by the alteration of the metabolic environment. The immunologic methods of treatment seem to offer the most hopeful promise. Active immunization has been accredited in the literature with certain apparently indisputable cures. There has been a fairly extensive use of vaccination, and although it is too early to form a definite judgment as to the final results, there can be no doubt that in many cases it has produced very marked shrinkage of the tumor, which has, in some instances, disappeared completely.

SOUTH DAKOTA STATE MEDICAL ASSOCIATION

Thirty-Third Annual Session held at Watertown, May 26-28, 1914

(Concluded from page 58)

Chronic Gastric Disturbances; Differential Diagnosis

DR. G. EUSTERMAN, Rochester, Minn: Chronic simple ulcers of the stomach and duodenum furnish the typical syndrome of dyspepsia. The attacks alternate with free intervals, as a rule, and last from several weeks to a month or longer. The symptoms are less variable with duodenal than with gastric ulcers. Spring and fall seizures are quite common in the former. Hunger-pains, so-called, are frequently absent. Definite hemorrhage occurs in less than one-third of all cases. Tenderness plays a minor rôle and is invariably absent until the peritoneum is involved. Persistent tenderness to a marked degree suggests protected perforation. In the majority of instances, one may make a reasonably safe clinical diagnosis of ulcer, but to say that a given case is definitely gastric or duodenal is a more difficult matter. The atypical cases or in types in which there is a paucity of symptoms, the result of test-meal analyses and roentgenoscopic findings are of correspondingly greater importance.

Uncomplicated ulcers of the duodenum and pylorus are usually so definite in their symptomatology that they may be diagnosed with but little trouble. In ulcer of the stomach proper the facts are not so clear-cut as in the duodenal and pyloric types, nor are the day-by-day symptoms so clearly defined. In cases with lesions well above the pylorus the symptoms are apt to be continuous for longer periods, or remissions rather than free intervals are apt to be present. The pain and distress are not so often eased by food, or small amounts of food may give relief, while increased food may give distress. More care in diet and careful attention to the physical and nervous states are necessary. Soda relieves

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when food does not. Pain begins earlier, as a rule, often disappearing before the next meal, and thus the food-relief feature is minimized; but pain from half an hour to one hour after food is the usual rule and is of great diagnostic significance. Radiation and diffuseness of pain are considerably more extensive in gastric than duodenal types. Vomiting is rather more common in gastric ulcers than in uncomplicated ulcers of the duodenum and pylorus. Owing to a delayed emptying capacity, the vomitus usually contains food in an early to a moderate stage of digestion. Hematemesis is more frequent in cases of the gastric type. Chronic recurrent types of appendicitis may closely simulate the clinical picture of a peptic ulcer owing to reflex motor and secretory perversion of the gastric functions.

In ulcer of the stomach, definite diagnosis is made in over 60 per cent. of the cases by a combined use of the fluoroscope and roentgenogram of the bismuth-filled stomach. In duodenal ulcer the cardinal sign is that of heightened peristaltic activity of the stomach. In these cases the clinical symptom-complex is so definite in about 90 per cent. that the present Roentgen-ray limitations are of less significance. In addition, the roentgenographic examination may give the first definite evidence of spasmodic or hour-glass deformity, cirrhosis and of other malformations whether due to intragastric or extragastric disease processes. The screen also furnishes most reliable information as to the position, size, tonus, mobility, peristaltic activity and emptying capacity of the stomach.

DISCUSSION

DR. W. D. FARRELL, Aberdeen: One reason why so many cases of upper abdominal disease are not diagnosed until there are complications is that we are looking for cardinal symptoms which do not develop until there are complications. We should look for the lesser symptoms and endeavor to make a diagnosis from them. Adhesions in the upper abdomen are produced by a low grade of inflammation; they are therefore slow in forming and may not produce any symptoms until they have become extensive. Some of the abdominal pains are reflected from the pleura, from the spinal column, and from the hips, and they may be very confusing.

DR. A. C. STOKES, Omaha: I divide stomach conditions into three classes; first, stomach conditions due to habit, which embrace irregularities in eating, improper food, too much food, too much drinking, too much sitting up at night, or too much getting up early in the morning; second, stomach reflexes; stomach conditions due to kidney disease, eye disease, to bad teeth, etc.; third, pain referred to the upper abdominal region. In this division I have not conceived any method or system by which I can always make a definite diagnosis.

DR. T. F. RIGGS, Pierre: A man, aged 33, had recurrent pains in the upper abdomen for two or three years. The period of recurrences varied from three to six weeks, and the duration of the recurrence was about a week. He had marked hyperacidity. His free hydrochloric acid was 68; there was blood in the stools, microscopic as well as macroscopic, and tenderness over the right quadrant of the abdomen, but no definite diagnosis was made. There were three provisional diagnoses made. The first one was ulcer of the duodenum; second, gall-bladder adhesions or old cholecystitis, and third, possible involvement of the appendix. At operation the second and third conditions were found.

DR. THORSEN N. KJERLAND, Webster: A woman had been sick for about three years with all the symptoms of duodenal ulcer. We operated and found the duodenum in a perfect condition, but the gall-bladder was greatly distended with bile and there was general visceroptosis. We also found a large concretion in the appendix.

DR. A. H. YOUNG, Pierre: It is a great mistake to see such a lack of cooperation between the surgeon, the general practitioner and the laboratory man. They should work together.

Prevention of Disease

DR. F. H. SPAFFORD, Flandreau: The most valuable service which we can perform for mankind is the prevention of disease, and this can be done only by men trained to meet the new conditions. In the past this work has devolved almost entirely on the physician, but as the science of sanitation is broadening there will be an imperative call for men of some fundamental training and of good executive ability. The health officer of the future will be a biologic engineer as well as physician. This is going to open up a broad field, a new career for young men, men who will effectively put into active operation and enforce all the laws, rules and regulations which have been enacted for the conservation of health.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

June, VII. No. 6, pp. 409-500

1 *Excretion of Phosphates in Infancy. J. H. M. Knox, Jr., Baltimore, and M. Tracy, Philadelphia.
2 *Voice Sign in Chorea. W. B. Swift, Boston.
3 *Observations on Physiologic Anatomy of Infant's Stomach Noted in Course of Use of Balloon-Duodenal Catheter. A. F. Hess, New York.
4 Metabolism in Osteogenesis Imperfecta with Special Reference to Calcium. A. Bookman, New York.

1. **Excretion of Phosphates in Infancy.**—Knox and Tracy's work confirms the earlier observations that the urinary phosphorus excreted in twenty-four hours by an artificially fed infant is greater than that recorded for the breast-fed child. The data obtained by experiments, however, do not, in their opinion, justify the conclusion that any deduction as to the nature or severity of the nutritional derangement can be drawn merely from the amount of urinary phosphorus. The estimation of the daily phosphorus excretion from small, single urine samples is held to be unreliable, as the results thus are often at variance with those determined by examination of the twenty-four-hour urine.

2. **Voice Sign in Chorea.**—Examination by Swift of vocal utterance in chorea on the kymograph demonstrated a pretty constant voice change of rise in pitch and increase in intensity accompanying choreic movements—a vocal change —which, he says, deserves recognition as a new sign in chorea. He found that choreic contractions cause changes of pitch and intensity in vocal utterance. The most marked change is in the rendering of the vowel *a* as in *around*. Increase of intensity comes from increased contraction of expiratory muscles, and rise in pitch results from increased contraction of the muscles of the vocal cords. And chorea makes these contractions. In other words, or stating the same in its order of sequence, choreic muscle contractions in the expiratory muscles makes increased air pressure, which results in increased intensity in the voice; and choreic muscle contractions in the muscles moving the vocal cords result in increased tension there, which increases the frequency of vibration and raises the pitch in the voice.

3. **Anatomy of Stomach.**—In several instances Hess has been able, by means of the balloon-catheter, to bring about cardiospasm artificially, although he could not invariably accomplish this result. If the balloon was dilated within the stomach and then retracted so that firm pressure was brought to bear on the cardia for a few minutes, at times marked cardiospasm resulted. In some instances, after carrying out this procedure it was absolutely impossible to pass an ordinary catheter into the stomach. It is difficult to state, says Hess, whether this fact has clinical or pathologic significance, but it suggests the possibility, however, that cardiospasm may be the result of increased pressure within the gastric cavity, that it may be incited by an over distention of the stomach with food, or, more probably, with food and gas, and that the *Magenblase*, or air cushion, so constantly seen at the uppermost part of the infant's stomach, may at times assume pathogenetic importance.

American Journal of Medical Sciences, Philadelphia

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5 Sarcoma of Stomach. C. H. Frazier, Philadelphia.
6 Examination of One Hundred Painters for Evidences of Lead Poisoning. E. R. Hayhurst, Columbus, O.
7 Three Cases of Fatal Gastro-Intestinal Hemorrhage. G. E. Armstrong and E. J. Mullally, Montreal.
8 *Process of Bone Repair Following Trauma. F. W. Bancroft, New York.
9 Diabetes Mellitus and Its Differentiation from Alimentary Glycosuria. A. Eustis, New Orleans.
10 Chloroma of Myeloid Variety. F. X. Walls and A. A. Goldsmith, Chicago.
11 *New Method of Gastric Testing. M. E. Rehfuss, Philadelphia.
12 Osteitis Deformans (Paget) Involving Right Femur Only. S. H. Hurwitz, Baltimore.
13 *Valvular Heart Disease Contributory Etiologic Factor in Pulmonary Tuberculosis. N. B. Burns, North Wilmington, Mass.
14 Classification and Treatment of Hemoptysis. F. M. Pottenger, Monrovia, Cal.
15 Case of Congenital Absence of Lower Half of Interauricular Septum. R. Kilduffe, Jr., Chester.

8. **Process of Bone Repair Following Trauma.**—Bancroft's work was undertaken to attempt to learn the method of repair in bone cavities. An effort was made to secure a cavity in which absolute hemostasis occurred, and therefore a dead space. The humerus was exposed usually by a median incision, the periosteum was removed for a distance of at least 3 cm. in length and for almost the entire circumference of the bone. A rectangular piece, 1 by 0.6 cm., extending into the medullary canal, was removed from the median surface of the diaphysis, and the medullary cavity was thoroughly curetted and packed until hemostasis occurred. Realizing that this hemostasis was only temporary, and that oozing probably occurred from the medullary cavity after suturing the muscles over it, various experiments were tried: (1) the cavity was packed and then filled with hot sterile oil and the wound closed; (2) the cavity was packed with gauze, which was removed in twenty-four hours; (3) the cavity was packed with gauze sterilized in oil, which was removed twenty-four hours later (the purpose of this was to prevent the gauze adhering to the sides of the bone cavity and the subsequent oozing on its removal); (4) both ends of the cavity were filled with Morehof's bone wax; this caused very good hemostasis, and was used in the largest number of experiments. In one case a sac was made of the peritoneum covering the appendix. The peritoneum was stripped off and a purse-string suture applied around the opening of the peritoneum; the sac was then filled with salt solution and placed in the bone cavity, completely filling it. The idea was to prevent the cavity from filling with blood-clot, and with the hope that the sac would be absorbed.

After varying lengths of time the dogs were killed and the bones examined. The findings were as follows: Where the periosteum has been well stripped off the bone for a distance of several centimeters it is separated from it by serosanguinous fluid. Here the bone was apparently repaired from the medullary cavity by a framework of connective tissue, on which calcium salts have been deposited, forming osteoid tissue; there has also been a reparative process from the connective tissue of the Haversian canals at the sides of the bone incision. Where the bone has repaired under a definite fibrous connective-tissue capsule, which is continuous with periosteum and also adherent to the surrounding muscles. This connective tissue is apparently not different from other connective tissue, except that in immediate approximation to the newly forming bone there is a single layer of cells which are larger in shape and have nuclei that take a heavy stain. In places there is a metaplasia from the connective-tissue cells to these osteogenetic cells. In the process of repair in fractures by the output of callus there is a metaplasia from connective tissue which seems to arise from the surrounding tissues rather than being a direct continuation of the periosteum. There is also a direct metaplasia from a tissue closely resembling fibrocartilage into young bone.

In attempting to draw clinical deductions from these experiments in regard to transplantation of bone, Bancroft says it is reasonable to assume that the periosteum acts as a limiting membrane to the bone, tends to conserve its shape and to furnish its blood-supply. If the periosteum is stripped from the bone of the transplanted part, numerous thrombi will occur, in which the vessels enter the diaphysis; but if the periosteum is left attached, the blood-supply will probably be more quickly established through the vessels of the periosteum. If small pieces of bone are transplanted, it is obvious that Haversian canals must be cut in many directions, thus allowing easy ingress to the newly forming blood-vessels. The fragments also must receive a good blood-supply from the entire periphery. They grow in this case without the aid of periosteum.

11. **New Method of Gastric Testing.**—Rehfuss used a simple capsule which could be easily swallowed and withdrawn at any given interval. In this capsule substances were placed capable of indicating the condition of the gastric juice. The capsule was made of hard steel, plated with silver. It consists of two parts: the head, perforated to permit the passage of a small silk thread, and supplied with a screw thread, by which it is attached to the body. This is likewise perforated and slotted to permit of the greatest possible ingress of liquid. Rehfuss found the best possible base was one of agar-agar. It is best to use a 2.5 per cent. solution, as the addition of various coloring matters will soften it somewhat. Rehfuss used a 1 per cent. aqueous solution of Congo red and agar-agar jelly distinctly alkaline after it has cooled to 40 F.; the same solution added to hot agar-agar results in a precipitation of the dye.

Capillary tubes were prepared by drawing out ordinary glass tubing in the usual manner until the diameter approached 1.5 mm. These pipets were then kept ready for use, and when it was desired to perform a test they were simply plunged into the jelly, withdrawn, and a core of the substance remained in the tube. Pieces were then cut off, 8 mm. in length, and inserted in the capsule. The capsule was then given at any stage after a test meal or, after an ordinary meal, swallowed in the usual manner, with a little water, and allowed to remain in the stomach ten to fifteen minutes and then withdrawn, taking the precaution to tell the patient to swallow when the capsule reaches the root of the tongue. Rehfuss usually performs Mett's test *in vivo* by taking one of the capillary tubes, sucking up some fresh egg albumin, holding the pipet over a boiling-water bath for two minutes, which results in a softly coagulated albumin capable of showing peptic digestion. Rehfuss has been able to demonstrate the digestion of more than 1 mm. for either end in the course of an ordinary Ewald meal.

While experimenting with the Einhorn duodenal tube, Rehfuss became convinced that if the tip was modified it would be possible to obtain acceptable specimens of the gastric juice. The new tip is slotted instead of perforated, and the slots are so cut that their diameter is as great as the caliber of the rubber tubing, in that way assuring the more perfect aspiration of material. It is made of steel, or can be made of manganese bronze; is bulbous in shape, so as to be easily swallowed; weighs from 90 to 120 grains, depending on the extent of the slotting and when linked with the customary No. 8 French tubing will not only serve as a most acceptable duodenal tube, but finds an even greater field in the study of the gastric contents, capable of being left in the stomach for long intervals, and enabling one to make a fractional study of the gastric juice over the whole period of digestion. The weight is sufficient to permit rapid swallowing, at the same time assisting by gravity its passage through the duodenum.

13. **Valvular Heart Disease and Tuberculosis.**—In reviewing 1,300 consecutive case records of patients admitted to and treated at the North Reading State Sanatorium in the past three years, Burns found definite records of valvular heart disease in 288, or 17.53 per cent. Of the 605 female cases, 128, or 21.15 per cent., had cardiac disease, and of the 695 male cases, 100, or 14.3 per cent., were similarly complicated; of the former 74, or 57.8 per cent., were diagnosed as mitral regurgitation, 42, or 33.5 per cent., as mitral regurgitation and stenosis, and 12, or 9.3 per cent., as aortic regurgi-

tation, 3 of the latter having also aortic stenosis and 2 others of the 12 having mitral regurgitation with aortic regurgitation. Of the men, 65 had mitral regurgitation, and of these 65 there were 28 showing also mitral stenosis. Aortic regurgitation appeared in 24 records, and together with aortic stenosis in 6 cases. Five cases were recorded as "undetermined" in character, although noted as "valvular heart disease." Two of these were suggestive of tricuspid insufficiency according to the record, but no definite diagnosis as such was made.

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16 *Possible Factor in Production and Distribution of Edema. F. C. Shattuck, Boston.
17 *Simultaneous Occurrence and Interrelation of Exophthalmic Goiter and Tabes. H. Barkan, San Francisco.
18 Sterility in Male. J. D. Barney, Boston.
19 *Six Thousand Wassermann Tests for Syphilis Performed in Harvard Neuropathologic Testing Laboratory, 1913. E. E. Southard, Boston.
20 Cystitis—An Incomplete Diagnosis. B. Tenney, Boston.
21 *Extrapulmonary and Other Sounds Which May Lead to Errors in Diagnosis of Pulmonary Tuberculosis. J. B. Hawes, 2d, Boston.
22 Plea for Early Operation for Gall-Stones Based on Autopsy Records. J. C. Hubbard, Boston.

June 25, No. 26, pp. 977-1012

23 *Anal and Rectal Growths of Benign or Doubtful Character. T. C. Hill, Boston.
24 Back Pain and Its Diagnosis. H. Platt, Manchester, England.
25 *Vaccine Therapy of Typhoid. A. A. Hornor, Boston.
26 Function of Social Service of Psychopathic Hospital, Boston. M. C. Jarrett, Boston.

16. **Factor in Production and Distribution of Edema.**—The Bertillon system shows that by a sufficient number of accurate measurements any person can be distinguished from every other person. Even more remarkable proof of the individuality of the individual is afforded by the fact that no two persons have the same finger prints. Is it not at least possible, asks Shattuck, that analogous variations may exist in the texture of the tissues, of the organs, in the blood, or one or another of its constituents, which may be a factor in the distribution of edema? In the urticarias, perhaps especially the giant form, and in angioneurotic edemas, a nervous element must play an important part; but it would seem possible that individual peculiarity of tissue may play a part in the localization of the striking superficial changes.

17. **Occurrence and Interrelation of Exophthalmic Goiter and Tabes.**—Barkan cites 8 cases in which all the patients were afflicted at one and the same time with Basedow's disease and tabes. All but 1 showed a positive Wassermann reaction; all showed the cardinal symptoms of tabes; Argyll Robertson, absence of patellar or tendo achillis reflex; all but 2, Romberg's sign; 3 cases in addition to the cardinal symptoms, optic atrophy; 1 case, marked ataxia; 2 cases, distinct areas of paresthesia, 1, lancinating pains. Six of the 8 admit having lues. There can be no doubt that we are dealing with 8 tabetics. As a group they present just as typical picture of Basedow's disease. All show exophthalmos, a pulse varying from 95 to 120, and fine tremor of extended hands and tongue; a palpable and enlarged thyroid, though to slight degree in all but one; all complain of perspiration, or restlessness and nervousness. All show marked loss of weight. Two of his patients had been taking iodids and it is a question as to whether they belong to the type picture. They are instructive in another regard, however, to be referred to later. There is no case in which any one of the signs here ascribed to Basedow, or the combination of them in any case, could be counted as belonging to the tabes. This, however, in view of all the other signs and symptoms of Basedow's disease, can be safely reckoned as belonging to this latter.

The "time occurrence" of the two diseases, Barkan states, is an aspect of the combination on which Sattler has collected some interesting data. In the cases of Joffray, Barie, Sechchiere, P. Marie and Marinesco, the two were found coexistent at the first examination of the patient, who could not tell which group of symptoms had commenced first. In a second case Joffray and in one of Moebius', the symptoms of both appeared at the same time; in Moebius' case lightning pains, diplopia, tremor and tachycardia were all equally marked and had appeared at the same time; Argyll Robertson, optic atrophy, absence of patellar reflex, Romberg, exophthalmos and struma were found combined at the first examination. In the cases of Lewinek, Timotheef and Mannheim, and in one further case of Joffray the cardinal symptoms of tabes had existed for five years, to be followed by typical Basedow: in one case only was exophthalmos missing. In the further cases of Charcot, Moebius, Deliarde, Wiener, Cohen and Mannheim, Timotheef and Bernhardt, the Basedow antedated the tabes, but it is to be remembered in this connection that the Basedow symptoms are usually first noticed by the patient, incipient tabes being then found on examination. It is to be noted that in all the cases the specific infection occurred years ago, with the Basedow in all cases years after the infection, appearing in practically all cases shortly before, at the same time with, or shortly after, the symptoms of tabes. There is not a single case reported, in fact, in which the Basedow antedated the specific infection and in which in that case tabes-Basedow were found coexistent later, although in several cases struma had existed for years. One of Barkan's patients presented tabetic symptoms antedating the appearance of exophthalmos by eighteen years; one patient, tabetic symptoms antedating those of Basedow by five years; one patient had suffered from Basedow for two to three months previous to examination and at that time presented marked tabetic signs. Without question these have existed for a longer period. One patient states having noticed loss of feeling in the distribution of the ulnar nerve twelve to fifteen years ago, exophthalmos since eight years. One patient had had paralysis of the third nerve six years ago and had noted symptoms of Basedow in the last few months only. One patient had had diplopia a year ago and had noticed exophthalmos with loss of weight since four months. One patient had noticed the exophthalmos two years ago and was found to have objective marks of tabes, whose beginning must certainly be traced as far back as that. One patient had well-marked optic atrophy, had had diplopia six years ago, had had gastric crisis three years ago; her Basedow symptoms are of only a few months' duration.

19. **Wassermann Tests for Syphilis in Harvard Laboratory.**—Twenty-three per cent. of all sera examined in the Harvard Laboratory were positive, and since the cases are in many instances picked as likely to be positive, this percentage is doubtless much higher than the community's total percentage. Thirty-three per cent. of all cerebrospinal fluids examined were positive. Aside from its capacity to solve problems of individual diagnosis, Southard believes that the Wassermann method is obviously of such value to the community that a community Wassermann service might well be undertaken by a state agency such as Board of Insanity or the Board of Health.

21. **Sounds May Lead to Errors in Diagnosis of Tuberculosis.**—Muscle sounds, Hawes says, were a potential source of error in 9.2 per cent. of 250 cases studied by him. Such sounds occur, particularly in muscular persons of nervous temperament. These sounds can be lessened by quieting and calming the patient and by seeing that the examining room is sufficiently warm. Errors due to these sounds can be avoided only by great care and concentration on the part of the physician. Joint sounds, resembling râles and a potential source of error, occurred in 22 per cent. of this series. Errors due to this cause may be avoided by the procedure described in detail above, of making the patient "go through the motions of breathing without taking a breath." This should be done in every doubtful case. Tendon or bursal sounds, atelectatic râles or marginal sounds, Hawes thinks, ought to cause confusion or be sources of any mistakes in diagnosis.

23. **Anal and Rectal Growths of Benign or Doubtful Character.**—The vast majority of benign tumors of the rectum according to Hill are easily recognized. The two most

common varieties are the adenoid and the fibroid polyps. They may arise from any part of the rectum, but are generally found in the lower 2 inches. Their presence is generally undetected until the pedicle has stretched sufficiently for them to protrude at the anal orifice during defecation. When found, they should always be removed even if causing no discomfort and submitted to examination for possible malignancy. Operative removal is simple and in most cases can be done under local anesthesia. The growth should be hooked down with the finger or instruments and the pedicle infiltrated with a weak solution of cocain and clamped with a suitable pair of forceps as close as may be to its attachment to the rectal wall. A linen or silk ligature is next applied on the proximal side of the clamp, or, if broad, the pedicle is transfixed with it and it is tied in sections. The growth is then cut away on the distal side of the clamp, which is removed, and in due time the ligature sloughs away.

When more than one or two polypoid or semisessile growths present to the examining finger in the rectum, and particularly if they are rather higher than the zone of ordinary occurrence of single growths, and there is an associated history of diarrheal and mucoid discharges, Hill states, one must consider the possibility of multiple adenomata, a most serious condition, rarely or never met or diagnosed by most physicians. When the growths are numerous and close together the feeling is distinctly like malignancy, and only by means of the proctoscope or sigmoidoscope can a certain diagnosis be made. These growths may, and usually do, occupy the major portion of the large bowel, bleed easily and may be soft or dense according to the amount of contained glandular or fibrous structure. They are very prone to malignant degeneration, and because one tumor is removed and found not to have been so transformed, one had no right to infer that it has not occurred in others.

25. **Vaccine Therapy of Typhoid.**—One hundred and thirty-five cases of typhoid were studied by Hornor, comparing 40 cases in which vaccines were administered with 95 cases in which vaccines were not used. The 135 cases were treated alike save for the use of vaccines. The vaccine used was made by suspending in physiologic salt solution a twenty-four-hour agar slant growth of *Bacillus typhosus* and then killing the organisms by a thirty-minute exposure to a temperature of 56 C. The initial dose of the vaccine was ten million killed bacteria. The number of organisms injected was increased daily by ten million, being administered every afternoon for one week, then on alternate afternoons with a twenty million increase until the temperature remained normal for three days or patient had received 700 million dead bacilli. The average total number of organisms given each patient was 516 million.

The inoculations were intracuticular and were all accompanied by local reactions—or redness, induration, pain and tenderness. These appeared within twenty-four hours and lasted twelve to forty-eight hours. No systemic reactions were detected. The average duration of fever in uncomplicated cases treated with vaccines was 24.39 days; in uncomplicated cases not receiving vaccines was 23.08 days. The percentage of cases showing complications were: inoculated, 55; uninoculated, 50½; all cases, 51. The percentages of mortality were: of vaccinated cases, 10; of unvaccinated cases, 11½; of all cases, 11 1/10. The duration of fever in uncomplicated cases was approximately the same whether the cases did or did not receive vaccines. Defervescence in the uncomplicated cases began usually on the third day after admission no matter whether vaccines were or were not administered. A more detailed study of the incidence and of the character of complications shows relapses occurring in 20 per cent. of inoculated cases in contrast to 11.5 per cent. of uninoculated cases; recrudescences in 17.5 per cent. of inoculated cases as against 28.4 per cent. of uninoculated cases; other complications in 37.5 per cent. of inoculated cases compared with 21 per cent. of uninoculated cases. The complications include hemorrhage, perforation, phlebitis, pneumonia, parotitis, tonsillitis, osteomyelitis, acute hallucinosis, Vincent's angina, and decubitus.

Four deaths occurred among patients treated with vaccines, the first death due to an intestinal perforation, after the fifth inoculation of vaccine and after patient had received a total of 150 million dead bacilli; the second death was due to septic parotitis developing during a relapse which began after three weeks without fever and after patient had received 880 million killed bacteria; the third death was due to an intestinal hemorrhage occurring on eighteenth day after patient's admission to the hospital and after he had received 530 million dead organisms; the fourth death was due to bronchopneumonia on patient's twenty-first day in hospital and after he had received 830 million killed typhoid bacilli. These deaths were obviously not due to complications extraneous to typhoid. The deaths occurring among the 95 cases not inoculated with dead typhoid bacilli were as follows: 4 pneumonia, 2 hemorrhage, 3 severity of the disease, 1 perforation, 1 alcoholism.

Bulletin of Medical and Chirurgical Faculty of Maryland, Baltimore

June, VI, No. 12, pp. 197-212

27 Surgical Repair of Blood-Vessels. J. S. Horsley, Richmond, Va.

Colorado Medicine, Denver

June, XI, No. 5, pp. 213-242

28 Surgical Treatment of Thoracic Empyema. C. E. Tennant, Denver.
29 Art of Obstetrics Among Primitive Peoples and Its Development Among Civilized Classes. C. B. Ingraham, Denver.
30 Acapnia—Its Relation to Anesthesia and Surgery. C. G. Parsons, Denver.
31 Anesthetization—Anesthetizer and Surgeon. R. L. Charles, Denver.

Delaware State Medical Journal, Wilmington

April, V, No. 5, pp. 1-26

32 Phylacogens in Every Day Work. W. Linn, Wilmington.

Georgia Medical Association Journal, Augusta

June, IV, No. 2, pp. 33-69

33 Some Work for Georgia Doctors. L. C. Allen, Hoschton.
34 Surgical Treatment of Goiter. E. G. Jones, Atlanta.
35 Means and Methods That Should Be Employed to Increase Longevity of Man. A. L. R. Avant, Savannah.
36 *Three Thousand Cases of Fever under Salicylate of Soda Treatment. B. P. Oliveros, Savannah.

36. **Cases of Fever under Salicylate of Soda Treatment.**—Oliveros believes that at least 75 per cent. of continued fever cases treated from the very beginning with salicylate of soda can be aborted in anywhere from six to fourteen days. His mode of procedure is like this: From the first day of seeing the case, for adults, 15-grain doses are given every two hours from 6 a. m. to 6 p. m. and continued from day to day. His idea in discontinuing the drug after the seventh dose is owing to the fact that with a longer continuation the patient becomes excitable and hallucinated, and passes a very restless night. In children he finds that in pushing the drug the doses have to be lessened on account of the depression and bad breathing which it causes. He has found it very rare to have a stomach refuse the drug; given with tincture cardamon or zinziberis it will stick about as well or better than anything else. Under the treatment that much-to-be-desired condition, a clean mouth and constantly soft tongue, is nearly always a present joy. There is an absence of delirium, a pleasant skin and a soft pulse. Where the temperature runs about 102 and sponging is necessary, the patient is in condition to thoroughly enjoy the mode of procedure. Any other drug as calomel, turpentine and salts, may be used when necessary without discontinuing the use of soda.

Journal of the Indiana State Medical Association, Fort Wayne

June, VII, No. 6, pp. 255-308

37 Visceroptosis: Symptomatology. J. C. Sexton, Rushville.
38 Id.: Roentgen Diagnosis. A. M. Cole, Indianapolis.
39 Id.: Medical Treatment. W. Schell, Terre Haute.
40 Id.: Surgical Treatment. E. Walker, Evansville.
41 Contact Points of Ophthalmology and Rhinology with General Medicine. T. Potter, Indianapolis.
42 Care and Treatment of Pneumonia. J. B. Maple, Shelburn.
43 Sanitary Laws. W. F. King, Indianapolis.

Journal-Lancet, Minneapolis

June 1, XXXIV, No. 11, pp. 289-319

44 Fractures in Neighborhood of Joints. J. B. Murphy, Chicago.
45 Brachial Plexus Anesthesia: Complete Local Anesthesia of Upper Extremity, Permitting of all Major Surgical Procedures. A. C. Strachauer, Minneapolis.
46 Carcinoma of Cecum and Appendix. G. Earl, St. Paul.
47 Case of Thoracic Aneurism without Physical Findings. H. S. Willson, Minneapolis.

June 15, No. 12, pp. 321-346

48 Cervical Ribs as Cause of Brachial Neuritis. A. S. Hamilton, Minneapolis.
49 Surgical Aspect of Cervical Ribs. A. A. Law, Minneapolis.
50 Intestinal Parasites of Minnesota. A. H. Sanford, Rochester.
51 *Case of Psoas Parvus Contraction. M. H. Cremer, Red Wing.

51. **Psoas Parvus Contraction.**—Cremer's patient, female, aged 27 years, was always well until Oct. 2, 1912, when, on arising in the morning she could not step on her left limb, owing to severe and continuous pain involving the anterior, posterior and internal surfaces of the left leg, and pain in the back and left inguinal region. The thigh was flexed and adducted. An examination could not be made owing to the extreme sensitiveness over the areas above mentioned.

After two days' rest the symptoms abated somewhat, and the patient walked into Cremer's office with a pronounced limp. On examination there seemed to be a fixed tumor in the left groin, apparently the size of a hen's egg. The limb thus always being flexed and adducted, any attempt at manipulation gave her excruciating pain. There was tenderness along the course of the sciatic nerve. A roentgenogram of the pelvis and body was taken, which showed the osseous system normal throughout. Extension was applied to the limb, but this aggravated rather than relieved the pain. On Oct. 25, 1912, an exploratory laparotomy was made, but Cremer was unable to find any pathologic condition. She left the institution ten days later, unimproved.

She then went to a mud-cure institution, in which she remained for a period of nine weeks, returning with the same train of symptoms as had existed since the onset of her trouble. Cremer again made a roentgenogram of the hip, spine, stomach and lower bowel, but could not define any lesion. The kidneys were normal; cystoscopy, negative; Wassermann, negative; blood, normal; tuberculin reaction, negative. It was a question of giving the patient sufficient comfort that she might meet her engagements rather than curing her of an ailment of which we had no knowledge. Excluding the various lesions which might cause the symptom complex, as, for instance, sciatica, Pott's disease, synovitis of the hip-joint, sacro-iliac disease, thrombosis of the lumbar cord and appendicitis, Cremer decided it must be a psoas contraction; an operation was done on December 26. The abdomen was opened in the midline below the umbilicus, going through the posterior peritoneum transversely, dividing the muscle tendon, the ends of which quickly separated for a distance of about 2 inches. The patient, when visited the following morning, had no pain in the limb and had had none since the operation. The limb was straight and not partially flexed as before, but freely movable without pain. She made an eventful recovery, leaving the hospital on the ninth day following the operation and soon assumed her regular vocation as saleswoman.

Lancet-Clinic, Cincinnati

June 13, CXI, No. 24, pp. 687-710

52 Exstrophy of Bladder. J. A. Johnston, Cincinnati.
53 Frederick Forchheimer—An Appreciation. O. Juettner, Cincinnati.
54 Thrombosis and Embolism—Series of Unusual Circulatory Accidents Occurring in Acute Infections. W. L. Bierring, Des Moines, Ia.

Laryngoscope, St. Louis

May, XXIV, No. 5, pp. 485-562

55 Roentgenoscopy of Nasal Sinuses. D. MacFarlan, Philadelphia.
56 Improved Method for Removing Posterior Tip of Inferior Turbinate. M. Lubman, New York.
57 Physiologic and Pathologic Relations on Eye and Accessory Sinuses of Nose. C. B. Wylie, Morgantown, W. Va.
58 Atrophic Rhinitis, Treatment with Scarlet Red. W. C. Wood, Philadelphia.
59 Surgery of Faucial Tonril as It Relates to Functions of Tongue and Soft Palate in Production of Voice. G. Hudson-Makuen, Philadelphia.
60 Surgical Conditions of Jaw. H. S. Dunning, New York.
61 Unusual Laryngeal Tumor. Specimen. Curious Esophageal Experience. Skiagraph and Foreign Body. H. Arrowsmith, New York.
62 Broncho-Esophagoscopy. E. W. Carpenter, Greensville, S. C.
63 New Tonsil Hemostat. A. W. Watson, Philadelphia.
64 Universal Syringe for Ear, Nose and Throat. P. Schoonmaker, New York.
65 Two Modified Forceps. E. Amberg, Detroit.

Medical Record, New York

June 20, LXXXV, No. 25, pp. 1103-1159

66 Uric Acid Overproduction. W. H. Porter, New York.
67 Langerhansian Hormone, and Hormone Treatment of Diabetes. H. R. Harrower, London.
68 Treatment of Trifacial Neuralgia by Injection of Alcohol, into Gasserian Ganglion. C. D. Camp, Ann Arbor, Mich.
69 Injuries of Inner Ear. E. Amberg, Detroit.
70 *Medical Management of Exophthalmic Goiter. R. Abrahams, New York.
71 Wright's Solution: Substitute for Antiseptic Solutions. G. K. Dickinson, Jersey City, N. J.

June 27, No. 26, pp. 1151-1218

72 Service of Medicine to Civilization. V. C. Vaughan, Ann Arbor, Mich.
73 Splenectomy for Pernicious Anemia: Report of Case. W. Coleman and J. A. Hartwell, New York.
74 Primary Lupus of Larynx. E. Mayer, New York.
75 Arterial Hypertension. I. W. Ballard, Opelika, Ala.
76 Varix of Internal Saphenous Vein Resembling Strangulated Femoral Hernia. G. P. Coopernail, Bedford.

70. **Treatment of Exophthalmic Goiter.**—The ideal treatment of exophthalmic goiter, Abrahams states, is found in complete isolation, rest and freedom from every conceivable care and worry. With this treatment, no medicinal agents need be associated. The most distressing sign of the disease is the rapidity of the heart action. Abrahams finds that the tincture of strophanthus given in 5- or 10-minim doses, three time a day, is most useful to steady the heart. If strophanthus fails, the tincture of belladonna in the same dose is a good second best. The other distressing conditions in exophthalmic goiter are tremor and nervousness. These are very well controlled by ammonium bromid in doses of 20 grains three times a day; this need be given for a short time only, because when the strophanthus begins to act the nervousness subsides, as a good share of it results from the consciousness of a rapid and pounding heart. The lukewarm shower-bath is another means to allay tremor and nervousness. The bath also works well as a hypnotic. Iron is rarely indicated, an opiate never. Once in a great while, when the patient is much disturbed at night with frequent urination, 0.25 grain of codein taken at bedtime will mitigate that evil. The diet should be of the simplest kind. Tea and coffee should be forbidden. Abrahams has also used serums. Beebe's and the antithyroidin of Möbius with some good results.

Military Surgeon, Chicago

June, XXXIV, No. 6, pp. 501-607

77 Ambulance Company. F. T. Woodbury, U. S. Army.
78 Disposal of Wastes. A. Farenholt, U. S. Navy.
79 Fracture of Jaws. T. E. Carmody, Colo. N. G.

Missouri State Medical Association Journal, St. Louis

June, X, No. 12, pp. 447-502

80 Feeding of Sick Infant. F. C. Neff, Kansas City.
81 Neurologic Manifestations of Pernicious Anemia. F. M. Barnes, Jr., St. Louis.
82 Bacterial Vaccines and Theory of Their Use. W. G. Thompson, Holden.
83 Eclampsia. A. L. Gray, St. Joseph.
84 Fracture of Skull. Report of Two Cases. A. W. McArthur, Kansas City.
85 Legal Aspects of Medical Practice and Some Preferences in Particular to Eye work. J. S. Weaver, Kansas City.

New York Medical Journal

June 20, XCIX, No. 25, pp. 1217-1264

86 Scoliosis Clinic of Children's Hospital, Boston. J. W. Sever, Boston.
87 Determinants of Tabes. W. J. M. A. Maloney, New York.
88 Alien in Relation to Spread of Acute Infectious Disease. L. L. Williams, Ellis Island.

89 Antituberculosis Campaign. J. Rosenberg, Margaretsville and New York.
90 Erroneous Deductions from Tracheal Insufflation. R. C. Coburn, New York.
91 Identity of Lane Kink with Joseph Price Elbow. J. W. Kennedy, Philadelphia.
92 *Case of Idiopathic Splenomegaly; Splenectomy. A. E. Sellenings, New York.
93 Sources of Error in Wassermann Technic. C. T. Stone, New York.
94 Neosalvarsan in Concentrated Solution. J. Girsdansky, New York.
95 *Possible Solution of Mercury Bichlorid Problem. J. H. Heacock, New York.

June 27, No. 26, pp. 1265-1320

96 Service of Medicine to Civilization. V. C. Vaughan, Ann Arbor, Mich.
97 Cerebrospinal Fluid and Its Relation to Brain Tumors. C. H. Frazier, Philadelphia.
98 Liver in Acquired Syphilis. H. Brooks, New York.
99 Diagnostic Pitfalls in Mental Examination of Negroes. J. E. Lind, Washington, D. C.
100 Treatment of Whitlow: Later, Felon. B. Robinson, New York.
101 Auscultatory Inflation of Colon. J. H. Musser, Jr., Philadelphia.
102 Pituitary Extract in Obstetrics. G. L. Brodhead, New York.
103 Effect of New Regulation Restricting Sale of Bichlorid of Mercury. C. F. Pabst, New York.
104 Visit to Lourdes. H. L. Shively, New York.

92. **Idiopathic Splenomegaly.**—Sellenings cites the case of a man, 23 years old. Used alcohol occasionally; venereal history denied; no history of acute or chronic illness except present condition. At the age of one year he fell out of bed and to this circumstance was attributed the abdominal swelling, which gradually increased in size, causing increasing pain, to which he had become more or less tolerant. However, two weeks prior to date of admission, he began to experience severe and increasing pains in the epigastrium and left side of abdomen. These pains were paroxysmal at first, later becoming more severe and continuous, when he sent for an ambulance and came to the hospital. The patient was an anemic, poorly nourished adult; heart and lungs apparently normal. There were no lymph-node enlargements. The striking feature was a large solid tumor lying in the left side of the abdomen and extending from its dome to well below the umbilicus. The tumor anteriorly presented a distinct and sharp border. The liver was apparently not increased in size. There was no ascites. Veins of the abdomen were not prominent; no jaundice or pigmentation. A diagnosis of enlarged spleen with undetermined etiology was made. Examination of urine showed a trace of albumin. Von Pirquet test was positive; Wassermann was negative. Blood examination, July 5: Hemoglobin, 70 per cent.; red cells, 4,800,000; white cells, 8,000; polynuclears, 81 per cent.; lymphocytes, 17 per cent.; eosinophils, 2 per cent.

Operation for removal of the spleen was done July 22, under gas-ether anesthesia. On the second day following the operation the patient's temperature rose to 105 F., with a remission to 100.4 F. on the fourth day. On the fifth day it again rose to 105 F., but on the sixth day it began to decline. A superficial infection at the site of the drain delayed his discharge from the hospital until August 22. The pathologic report was: Marked chronic interstitial splenitis and perisplenitis. Blood examination two days after operation showed: red cells, 4,970,000; white cells, 9,200; polynuclears, 96 per cent.; lymphocytes, 3 per cent.; eosinophils, 1 per cent. On September 13 the patient was readmitted to the hospital, suffering from an anal abscess, which was evacuated. Following this the blood-picture was as follows: red calls, 4,850,000; white cells, 11,000; lymphocytes, 19 per cent.; polynuclears, 81 per cent.; hemoglobin, 72 per cent. In November, 1913, four months after operation, it was reported that the patient had gained 15 pounds.

95. **Bichlorid Problem.**—Heacock suggests that all bichlorid tablets be manufactured in coffin shape, each to be stamped with the word "poison" on upper and lower surfaces, and to be colored a jet black or an intense scarlet; and to be placed in dark colored bottles having spinous projections from their surfaces. The latter of itself has proved to arrest attention on the part of the prospective consumer. The label should have the usual red field with the word "poison" in white letters.

New York State Journal of Medicine

June, XIV, No. 6, pp. 289-338

105 Newer Methods of Treatment in Nervous and Mental Diseases. L. P. Clark, New York.
106 Relationship of General Practitioner to Surgeon. N. Jacobson, Syracuse.
107 *Infection with Bacillus Coli Communis, Complicating Pregnancy, Labor and Puerperal State: Its Medical and Surgical Treatment. E. P. Davis, Philadelphia.
108 Asphyxia Neonatorum and Its Sequelae. W. P. Manton, Detroit.
109 *Sterility in Women. W. E. Ford, Utica.
110 Obstetric Technic. R. L. Ellithrop, Gloversville.
111 Determination of Surgical Conditions of Stomach in Chronic Cases. W. A. Bastedo and L. T. LeWald, New York.
112 Importance of Urology in Women. H. D. Furniss, New York.
113 Should General Practitioner Take Part in Treatment of Gonococcus Infection? J. B. Clark, New York.
114 Landry's Paralysis and Its Relation to Acute Epidemic Poliomyelitis. E. A. Sharp, Buffalo.
115 Influence of Diet on Growth and Recurrence of Adenoids. F. Van der Bogert, Schenectady.

107 and 109. Abstracted in THE JOURNAL, May 30, pp. 1750 and 1751.

Northwest Medicine, Seattle, Wash.

June, VI, No. 6, pp. 155-188

116 Sacroiliac Traumatisms. C. R. McClure, Portland, Ore.
117 Fractures of Pelvis. Report of Cases. C. G. Sabin, Portland, Ore.
118 Useful Splint (Hacker) for Fracture of Upper End of Humerus. H. B. Thompson, Seattle.
119 Conclusions Reached after Twenty Years' Obstetric Practice Covering 2,108 Cases without Maternal Mortality. E. I. Rich, Ogden, Utah.
120 Impassable Contraction of Gravid Uterus, Report of one Case Verified by Cesarean Section. Dilatation of Stomach Recovery. E. J. Lawrence, Spokane.
121 Local Health Department. S. G. Paul, Salt Lake City.
122 Medical Inspection of Public Schools. E. A. Montague, Tacoma.
123 Cancer of Breast. J. W. Aird, Provo, Utah.
124 Treatment of Asiatic Cholera at San Lazaro Hospital. A. C. Garton, Manila, P. I.

Ohio State Medical Journal, Columbus

June, X, No. 6, pp. 327-390

125 What Are Practical Health Measures? Who Should Lead, and Why? O. Dowling, Shreveport, La.
126 *Precancerous Conditions of Involuting Breast and Importance of Their Condition. J. W. Means and J. Forman, Columbus.
127 Scientific Aspect of Early Infantile Ocular Contagion. (Ophthalmia Neonatorum.) R. Sattler, Cincinnati.
128 Surgical and Postoperative Treatment of Empyema of Chest. L. G. Bowers, Dayton.

126. **Involuting Breast.**—The authors point out that both histologically and clinically abnormal involution bears a distinctly closer relation to carcinoma than mere coincidence, and should be regarded with more seriousness than has formerly been attributed to it. The following points seem to stand out preeminently: (1) The proliferating group of abnormal involution is frequently associated with cancer. In their series of twenty cases of cancer occurring in women past middle life, it is associated eight times, or 40 per cent. (2) The proliferating group of abnormal involution has connective tissue increase, blood-vessel obliteration and the consequent disturbed nutrition in common with other precancerous lesions. (3) The development of early malignant change cannot be detected from the clinical symptoms, hence; (4) the radical removal of the gland whenever the seat of this disease is indicated. (5) Examination and dissection of the axilla is demanded whenever the proliferation is at all marked. (6) The absolute necessity of the surgeon familiarizing himself with the gross sectional appearance and the need of cooperation between the laboratory and operating room.

Southern Medical Journal, Nashville, Tenn.

June, VII, No. 6, pp. 431-514

129 Management of Carbohydrates in Infant Feeding. L. W. Elias, Asheville, N. C.
130 Management of Proteids and Fats in Infant Feeding. A. W. Calloway, Asheville, N. C.
131 Chronic Splenic Anemia, Banti's Disease and Allied Conditions. J. B. McElroy, Memphis.
132 Treatment of Gastro-Intestinal Tract in Pellagra. C. C. Elebash, Selma, Ala.

V. 191

133 Pellagra. R. E. Sylvester, Tylertown, Miss.
134 Rational Psychotherapy. R. S. Carroll, Asheville, N. C.
135 Negro, Public Health Problem. C. E. Terry, Jacksonville, Fla.
136 Postoperative Care of Abdominal Cases. G. C. Rodgers, Elkins, W. Va.
137 Unusual Cases. E. D. Holland, Hot Springs, Ark.
138 Nasal Tampon Treatment of Sinus Diseases and Ocular Complications. J. I. Dowling, Albany, N. Y.
139 Pellagra. J. E. Evans, Fulton, Ala.
140 Case of Diabetes Mellitus Showing Uncinaria Infection. W. W. Dinsmore and P. B. Moss, Montgomery, Ala.
141 Effects of Continued Use of Opiates on Human System. W. C. Ashworth, Greensboro, N. C.
142 Surgical Treatment of Goiter. J. R. Wathen, Louisville, Ky.
143 Galveston Autopsies. G. C. Kindley, Galveston, Tex.
144 Prevention of Deafness. J. B. Greene, Asheville, N. C.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 6, 1, No. 2788, pp. 1221-1276

1 *Prophylactic Use of Sensitized Bacterial Vaccines in Puerperal Sepsis. S. T. Champtaloup.
2 *Treatment of Uterine Abscess by Sensitized Bacillus Proteus. W. Broughton-Alcock.
3 Excision of Bladder for Malignant Disease. C. A. Morton.
4 *Case of Ectopia Vesica in which Ureters Were Grafted Successfully into Rectum. T. Y. Simpson.
5 *Direct Intragastric Method of Treating Certain Ulcers of Stomach. J. L. Thomas.
6 Cholecystotomy in Lieu of Cholecystostomy in Certain Cases of Cholelithiasis. J. E. Maylard.
7 Urinary Diastase Test and Loewi's Reaction in Pancreatic Lesions. L. Humphry.
8 *Two Cases of Acidosis Terminating Chronic Myocardial Disease. C. Coombs.
9 Suppurating Hydatid of Crura of Diaphragm. J. Oliver.
10 Dyspareunia and Its Surgical Treatment. J. Phillips.
11 Identity of T. Rhodesiense with Trypanosome of Same Appearance Found in Game. W. Yorke and R. Blacklock.
12 Electrargol in Small-Pox and Plague. R. Denman.

June 13, No. 2789, pp. 1277-1336

13 Influence and Responsibilities of Medical Profession in Social Legislation and Administration. A. C. Farquharson.
14 Obstetric Medicine in Uganda. A. R. Cook.
15 Plea for Surgical Work in Cottage by Country Practitioner. J. E. Webb.
16 Place of Roentgen Rays in Treatment of Cancer. F. Fowler.
17 Small Outbreak of Epidemic Cerebrospinal Meningitis. J. M. Clarke and J. O. Symes.
18 Frey's Method of Anesthetizing Larynx. C. Yorke.
19 Gumma of Larynx Necessitating Tracheotomy. W. J. Harrison.
20 Rare Form of Lichen Ruber Planus. C. H. Cattle.

1. Prophylactic Use of Sensitized Bacterial Vaccines.—Champtaloup suggests that health departments issue sensitized streptococcal vaccines for prophylactic use in maternity practice. In view of the fact that 80 per cent. of cases of puerperal sepsis are due to streptococci, he thinks it would be well to use a stock sensitized polyvalent streptococcal vaccine as a prophylactic, in the face of an epidemic of puerperal infection, such as is sometimes witnessed in an institution, or in private practice in which the house surroundings are not of the best, or in which the practitioner has already recently attended a case which has gone septic. Champtaloup suggests that doses of 100, 250 and 500 million of this vaccine be given the expectant mother at forty-eight-hour intervals, ten to fourteen days before the expected date of confinement. The sensitized vaccine is preferable to the ordinary vaccine because of the absence of reaction and the more rapid immunization.

2. **Treatment of Uterine Abscess by Sensitized Bacilli Proteï.**—A married woman aged 55 complained of a long-continued vaginal discharge of pus. Three years previously she had undergone subtotal hysterectomy for fibroma. For six months subsequent to this operation the patient had trouble with her bladder and then became subject to a vaginal discharge. On examination the vagina was found to be full of yellowish, thick, tenacious pus, without marked smell; it was seen to be exuding from the cervix, and a probe passed into the latter led into an abscess cavity a little under 1½ inches in diameter. Some pus withdrawn from this cavity was submitted after microscopic examination to culture, and colonies of pure *B. proteus* resulted. The first part of the treatment consisted in giving, at intervals of three or four days, seven injections of a culture of the bacilli derived from the pus; the doses gradually increased in amount, the first being equal to 100 million bacilli, and the last to 2,000 million. The bacilli were heated to 60 C. for an hour before administration. A very slight local and general reaction followed each injection.

On the eighth day after the last injection of these dead bacilli 20 c.cm. of blood was taken from the patient and used for the preparation of an autogenous vaccine consisting of living bacilli, sensitized by contact with the serum of the patient's blood, which was rich in amboceptor and specific agglutinating properties. At this date a vaginal examination was again made, and the abscess found to be still secreting, though in lessened quantity, pus containing the *B. proteus* in pure culture. On the tenth day after the last injection of dead bacilli injection of the sensitized autogenous vaccine was commenced, one injection being given weekly for four weeks, and the dose increased from 400 million at the beginning to 1,000 million at the end. Again very slight reactions followed the injections. At the same time the abscess cavity was washed out with a dilute antiseptic solution. By the time the fourth injection had been given the discharge of pus had entirely ceased, but to render the cure more secure four further injections were subsequently given.

4. Ectopia Vesica in which Ureters were Grafted Successfully into Rectum.—The subject of this report had ectopia vesicae. Urine was continually spurting in drops from the two ureteric openings, calcareous concretions had formed on the pubic hairs, she was unable to walk except for a short distance, and had to be wheeled about. Her clothing adhered to the protruding posterior bladder wall, causing pain and discomfort by rubbing on it and the concretions; slight hemorrhage also occurred at times. There was a urinous odor about her, and she was unable to attend school; she was fretful and irritable; the posterior bladder wall bulged like a large ventral hernia, and contained coils of intestine; the pubic symphysis was absent.

Simpson decided to transplant the ureters into the rectum and under a general anesthetic, he dissected up the posterior bladder wall from the peritoneum above and triangular ligament below. A catheter was inserted into each ureter, which was cleared for about 2 inches; the redundant portion of the bladder was removed except just around the ureters. Simpson next divided some fibrous tissue in the position of the hymen admitting the finger into the vagina, and then divided the triangular ligament, permitting the lower end of the ureters to be turned back into the vagina in close proximity to the anterior rectal wall. With a finger in the rectum an opening was made through the posterior vaginal and anterior rectal walls, and through this the catheters and ureters were placed; the free edges of the rectovaginal incision were sutured to the sides of the ureters, the triangular ligament, perineum and abdominal wounds were respectively drawn together with catgut. Urine was collected in a receptacle for seven days from the two catheters which protruded from the anus; they were then withdrawn, and the patient made an uninterrupted recovery. She is now able to retain her urine in the rectum for several hours at a time.

5. Direct Intragastric Treatment of Ulcers of Stomach.—The operation Thomas performed in one case was as follows: Scraping radially from the center of ulcer by Volkmann's spoon all the detachable unhealthy tissues as far as the under surface of the mucous membrane forming its edge. Thermocauterization of the exposed fresh base of the ulcer in order to stop hemorrhage completely and to sterilize. Mobilization of the mucous membrane all around the edge of the ulcer by means of a long blunt-pointed scissors curved on the flat and with a delicate end. Removal *par morcellement* by means of Lane's bone-nibbling forceps of all the unhealthy mucous membrane now forming the mobile edge of the ulcer. The edges of the healthy mucous membrane were brought together by means of suitable sutures—continuous or interrupted. The gastrotomy wound was closed by separate con-

tinuous suture for the mucous, muscular and serous layers. The abdominal wall was then closed. The result is a complete success.

8. **Acidosis Terminating Chronic Myocardial Disease.**—The first case cited by Coombs was one of cardiosclerosis. The symptoms which suggested the existence of an acidosis were the powerful smell of acetone in the breath; the incessant thirst; the type of dyspnea, which in its sighing, rhythmic character and its disproportionate intensity recalled the air-hunger of diabetic acidosis; and the nervous symptoms, of which delirium and pupillary contraction were the chief. In the second case a similar train of symptoms marked the last phase. There was the same strong smell of acetone, the same kind of breathlessness, and a similar set of nervous phenomena. To this was added an extraordinarily severe diarrhea. That this was toxic is suggested by its intensity, its intractability, and its independence of colic or other abdominal symptoms. Coombs suggests that it may have been the outcome of an effort on the part of the body to rid itself of poisonous substances.

To these toxic phenomena the term "acidosis" is applied by Coombs because of their resemblance in essentials to diabetic and other acid intoxications. The sweetish breath, the air-hunger and the cerebral aberrations all seem to set down the phenomena seen in this pair of cases among the acidoses. Two important divergences were noted—the almost complete absence of acetone and B-hydroxy acids from the urine, and the failure of alkalinization as a therapeutic measure. None of the commonly recognized causes of intoxication were operative in these two cases; in neither man was there any trace of glycosuria or any hint at a preexisting diabetes. Both patients were feeding adequately, neither was there any vomiting nor other cause of starvation, apart from the diarrhea which supervened in the second case after the symptoms of acidosis had been observed. No drug had been administered in either case, such as might have given rise to acid intoxication. It seems to Coombs, therefore, that these two cases represent an acidosis differing in origin and nature from those types which have been hitherto recognized.

Edinburgh Medical Journal

June, XII, No. 6, pp. 481-590

21 Urinary Antiseptics. (Hexamethylenetetramine.) J. W. T. Walker.
22 Hypertrophic Pulmonary Osteo-Arthropathy (Marie's Disease). A. Gilmour.
23 Royal College of Surgeons of Edinburgh: Their Professors of Surgery. C. H. Creswell.

Journal of State Medicine, London

June, XXII, No. 6, pp. 321-384

24 Sexual Disease and Individual. A. Corbett-Smith.
25 Occupational Fatigue. T. Oliver.
26 Housing of Irish Working Classes. R. F. Heron.

Journal of Tropical Medicine and Hygiene, London

June 1, XVII, No. 11, pp. 161-176

27 Emetin Treatment of Dysentery in Young Children. R. G. Archibald.
28 Recovery of Embryo of Filaria Bancrofti from Blood from Lung During Daytime. B. H. Dutcher.

Lancet, London

June 6, I, No. 4736, pp. 1589-1660

29 Some Effects Which Follow on Changes in Reaction of Blood. (To be continued.) F. G. Hopkins.
30 *Acute Pancreatitis. A. E. Barker.
31 *Use of Neosalvarsan in Active Pulmonary Tuberculosis. P. H. S. Hartley.
32 Two Cases of Sprue Treated by Mouth Streptococcal Vaccines and Emetin Hydrochlorid Hypodermically. L. Rogers.
33 Congenital Deficiency of Radius and Homologous Condition in Leg. J. Fraser and H. H. Roharts.
34 Appendicitis Simulating Intussusception. R. E. Halahan.
35 Death Following Sting of Scorpion. R. McC. Linnell.

June 13, No. 4737, pp. 1616-1730

36 *Some Effects Which Follow on Changes in Reaction of Blood. (Concluded.) F. G. Hopkins.
37 Plea for Degenerate. T. C. Shaw.
38 *Aerial Conveyance of Infection. F. H. Thomson and C. Price.
39 *Experimental Production of Purpura in Animals. J. C. G. Ledingham.
40 Tuberculosis of Crus Cerebri Simulating Enteric Fever. F. E. Wynne.
41 Wassermann Reaction in Malaria. W. Fletcher.
42 *Effect of Gastric Pancreatic Ferments on Potency of Tincture of Digitalis. A. Goodall and H. S. Reid.
43 Traumatic Exfoliative Keratitis. P. A. Harry.

30. **Acute Pancreatitis.**—Three of Barker's patients described similar attacks at long intervals antecedent to that for which they sought surgical help. In one case there were two, one six years and one six months before the last; both after normal childbirth. In another case there was one attack nine months previously, described as quite similar to the last. It was not related to labor. In a third case the patient, male, described three illnesses of the same kind, the first five years before (in bed eleven weeks), the second four years before (in bed for three weeks) and the third three years before (for which he remained in bed one week). In the last of Barker's cases there was a history of very severe abdominal pain and shivering earlier in 1913, causing him to roll on the floor, and lasting some hours. In this case the sac of the omentum was empty, there was extensive fat necrosis in the retroperitoneal tissues but no sloughing at the moment of operation. This took place later. Another point noted as regards past history was that in two cases, there was much gastric trouble for some time previous to the attacks, and in one case the teeth were in very bad condition. A third patient was subjected to "frequent biliousness" before her attack.

In none of the cases was there anything in the history to suggest derangement of the biliary apparatus except doubtful jaundice in a previous attack in one case. Nor at the operations was anything wrong found in the gall-bladder. It was, however, of very great interest to note that at about the time when the exacerbation of symptoms followed by "fits" (tetany) came on (thirtieth day) the previously clear bile became turbid, and a considerable sediment of pus was found in the bottle for about a week. From the improvement which followed on this both in the general condition and the bile it seems clear that this pus found its way from the inflamed pancreas into the duct, then into the common duct, and thus into the gall-bladder. In one case there was no time for actual destructive change in or around the organ. The patient was killed outright by the shock of the onset in a few hours, and before any surgical relief could be undertaken.

The onset of the attack in all these cases was strikingly sudden except in one case in which four weeks "pain after food" elapsed before the condition was thought grave enough to call for admission into hospital. In the others, except for indefinite gastric disturbance, sudden severe pain in the epigastrium was the first and most prominent symptom. This was always described as very intense. The temperature in all cases was relatively low at the onset. The pulse was rapid and gradually increasing while losing tension. Vomiting was usual at the onset in these cases, not so prominent a feature later. The material brought up was usually bilious with mucus. In no case was a tumor found in the region of the pancreas without an anesthetic. In one case only was one discovered just before the operation when the anesthetic had been given.

On opening the abdomen turbid peritoneal fluid was found in three cases at operation (and in one case not operated on) in considerable amount. The intestines were injected and dilated in four out of the five cases operated on, but not paralyzed. They had not the appearance of being actually inflamed, their luster being unimpaired, and showing no lymph on them. But lymph was found in three cases in the neighborhood of the pancreas. From the character of the discharges coming from the inflamed gland there was only evidence of hemorrhage into or around it in three cases. The omental sac was opened in all the six cases operated on, but only in three had the destructive process made its way into it.

31. **Neosalvarsan in Pulmonary Tuberculosis.**—Of the sixteen cases in which Hartley has observed the effect of the drug, in one at least, that of a woman, aged 60, with extensive

pulmonary tuberculosis, two injections of neosalvarsan were given seemingly without effect. In another the beneficial effect was only temporary, and after a time pyrexia returned, though milder in degree. In others improvement resulted and the temperature became normal, the fall being a gradual one in some cases, but it has been difficult always to decide how far the result was due to the drug and how far to the rest in bed and favorable surroundiings to which phthisic patients may eventually respond even after a considerable period of pyrexia. Hartley says that the drug is not a specific, but it would appear to have the power of influencing very favorably certain cases of active and febrile tuberculous disease of the lungs which have resisted other treatment, and it merits, therefore, a more extended trial. If administered with care and with due precautions it may be given apparently without risk even in very advanced and grave forms of the disease.

36. **Changes in Reaction of Blood.**—The hydrogen ion concentration of the blood, Hopkins states, is a variable, but the interests of the body demand that its variations should be confined within a very narrow zone of change. In the maintenace of its mean value, which is such as to make the blood a very nearly neutral fluid, a great number of factors play a part—some chemical, some physiochemical, and others more purely physiologic. When appreciable variations occur they produce striking effects, especially on the mechanisms of respiration. Considerable departures from the normal indeed can only exist when the sensitivity of the respiratory center is simultaneously modified. In the tissues—at any rate in certain tissues—wider variations in the hydrogen ion concentration probably occur; but metabolic processes are nicely adjusted to the maintenance of approximate neutrality even in the tissues themselves. Any local change of reaction when it occurs may profoundly affect the general chemical equilibrium in a tissue of organ.

38. **Aerial Conveyance of Infection.**—As the result of experience, Thomson and Price assert that they could treat infectious diseases in one ward, almost certainly with perfect safety were they to select the day of the disease on which to admit them. They are in some doubt as to the conclusions to be deduced from their experience, but feel satisfied that the treatment of these diseases is more satisfactorily carried out in an open ward than in a cubicle ward—that is, rooms with incomplete partitions between the patients. It is open to perfect supervision, everything that is done can be seen by the staff. For the treatment of diseases when they are not conveyed by air, such a ward is also possibly better than box wards (rooms with complete partitions). The ward is a thoroughly well-ventilated one, and ample space is allowed for the patient.

Thomson and Price believe further that their evidence in the case of scarlet fever goes somewhat strongly to show that the infection is probably not air-borne. The evidence as to whooping-cough is less definite. The whooping-cough infections occurred in summer, when the ventilation was even more free than in winter. The infection of measles is probably air-borne early in the disease, but the power of infection soon passes. They are inclined to think that the infection of chicken-pox is air-borne early in the disease, but their experience goes to suggest that on and after the third day it is probably not air-borne. For many years they have held that diphtheria infection is not air-borne. No cross infection arose from German measles or from mumps.

39. **Production of Purpura in Animals.**—A condition resembling purpura and presenting other features of the hemorrhagic diathesis was produced by Ledingham in guinea-pigs by inoculation of an antiserum prepared by immunizing rabbits with guinea-pigs' blood-plates.

42. **Gastric and Pancreatic Ferments.**—The minimum lethal dose of samples of tincture of digitalis to frogs was ascertained by Goodall and Reid. Each sample was then kept in contact with a digestive ferment at body temperature for six hours and the minimum lethal dose was again determined. They found that the effect of pepsin in large quantity on the tincture of digitalis is comparatively slight. The effect of the pancreatic trypsin may be considerable, but it is doubtful whether tincture of digitalis given by the mouth ever comes much in contact with it. It is concluded that as tincture of digitalis is never likely to be subjected to such a severe digestive ordeal under the conditions in which it is administered therapeutically there is little likelihood of any loss of potency before it is absorbed.

Archives Mens. d'Obstét. et de Gynéc., Paris

May, III, No. 5, pp. 433-512

44 *Insufficiency of the Adrenals during Pregnancy. (Insuffisance surrenale dans la grossesse.) P. Zuloaga.
45 Retention of Membranes after Delivery at Term. Guildal.
46 Retention of Blood in Half of Double Uterus. P. Moiroud.
47 Postoperative Hernia. L. Imbert and D. Zwirn.

44. **Adrenal Insufficiency during Pregnancy.**—Zuloaga states that for nearly two years he has been treating the uncontrollable vomiting of pregnancy with epinephrin, and with complete success in a number of cases. Benefit can be anticipated only when the adrenals are functioning defectively. He gives the details of two extreme cases of this; the first patient was a woman of 25 whose adrenals had evidently been impaired by typhoid at 15; their functioning sufficed for ordinary conditions, but not to carry the woman through a pregnancy. By the second month uncontrollable vomiting, diarrhea, cold sweats, syncopes and nervous excitement suggested either acute poisoning, ruptured tubal pregnancy or acute peritonitis. The pulse was 145, tongue dry, respiration rapid and shallow and the blood-pressure low. Injection of caffein and saline was supplemented with 15 drops of epinephrin and ice to the abdomen. Improvement followed at once. In seeking for McBurney's point to exclude appendicitis, Zuloaga noticed that a persisting white line was left wherever his finger had been drawn along the skin. This recalled Sergent's statement that a persisting white line of this kind is pathognomonic of adrenal insufficiency, and Zuloaga therefore continued the epinephrin systematically, 10 drops every eight hours. All symptoms subsided and the pulse and blood-pressure returned to normal. The epinephrin was suspended after a month and the woman began to vomit anew, so that the epinephrin was resumed and she took 5 drops every twelve hours until her normal delivery. The second case was less severe and on a milk-vegetable diet and 5 drops of epinephrin every twelve hours the woman was tided along until delivery. During the latter months he alternated two weeks of the epinephrin with two weeks of calcium glycerophosphate. The "white streak" disappeared in all the cases under the influence of the epinephrin. In another group of cases the adrenal insufficiency did not cause trouble until the puerperium.

Bulletin de l'Académie de Médecine, Paris

LXXVIII, Nos. 21-22, pp. 701-754

48 Conjunctivitis with Pigmentation. (Encore sur un cas de chromidrose.) R. Blanchard.
49 Antityphoid Vaccination of Personnel of Paris Hospitals. Mesureur.
50 *Adrenal Tumor in Woman Accompanied by Development of Male Characters. (Le virilisme surrénal.) T. Tuffier.
51 *Color-Serodiagnosis of Cerebral Hemorrhage. P. Marie and A. Léri.
52 *Fatal Tetanus from Felt in Orthopedic Appliance; Two Cases. E. Kirmisson.
53 Peritoneal Complications of Scarlet Fever. P. Teissier.
54 *Paralysis from Long Use of Colchicin. A. Souques.
55 Vaccination against Tuberculosis. (Du rôle de la tuberculine dans la vaccination antituberculeuse.) A. Jousset.

50. See Paris Letter, June 20, p. 1978.

51. **Serodiagnosis of Cerebral Hemorrhage.**—Marie and Léri noticed that certain serums were greenish and more or less fluorescent and found in each case that the serum came from a patient with cerebral or meningeal hemorrhage. In three other patients with symptoms suggesting cerebral hemorrhage, but which proved to be softening of brain and no hemorrhage, there was no greenish tint to the serum, as also with serum from a hundred patients without hemor-

rhage. It was noticed in some cases the same day as the hemorrhage and it persisted in some up to the fifth or seventh day. This chromoserodiagnosis may apply to internal hemorrhage at any point.

52. **Tetanus from Felt in Orthopedic Appliance.**—See Paris Letter, July 4, p. 44.

54. **Paralysis from Colchicin in Self Medication.**—Souques relates that a robust man of 50 was subject about once a year to attacks of acute gout. Last November fearing that an attack was impending he began to take a proprietary remedy for gout, corresponding to a total of 34 mg. of colchicin, with 6 to 8 teaspoonfuls of Laville's liquid (said to contain colocynthin, quinin and cinchonin with calcium salts, in wine)—all in the course of nineteen days. Diarrhea came on, and abdominal pains but he still kept up his medicine. The nineteenth day paralysis developed in the hand and in twelve days had become complete, except for the head. It was accompanied at first by anesthesia of the feet and intense pains in the deep muscles. It persisted this way for a month and then rapidly improved. There was no mental disturbance at any time nor symptoms on the part of the heart, bladder or rectum, no albuminuria and no fever. Some muscular weakness and tenderness findings persist to date, six months after the first symptoms. Fatal poisoning from colchicin has been known with doses of 0.03 gm. and even with 0.003 gm.; the outcome depends mainly on the functional capacity of the kidneys. Diarrhea should warn to suspend the drug.

Bulletins de la Société de Pédiatrie, Paris

May 5, XVI, No. 5, pp. 241-326

56 *Chronic Appendicitis and Inguinal Hernia. V. Veau.
57 Heliotherapy in Surgical Tuberculosis. A. Trèves.
58 Recovery from Meningitis under Antiparameningococcus Serum; Two Infants. M. Delort and J. Stiassnie.
59 *The Blood-Dust in Infants' Serum. (Etude des hémoconies chez les nourissons.) Nobécourt and A. Maillet.

56. **Appendicitis and Inguinal Hernia.**—Veau has had operations for this combination of chronic appendicitis and hernia done on fifty-three children in his service. When a child complains of pains from an inguinal hernia or undescended testicle, appendicitis should always be suspected. Neither hernia nor undescended testicles cause pain as a rule. He prefers to operate separately on the hernia and the appendix except in quite small children outside of an acute stage.

59. **Blood-Dust in Infants' Serum as Basis for Prognosis.**—Nobécourt and Maillet conclude from their study of the hemoconiae in the blood-serum of forty-two infants that a large proportion is generally but not always a favorable sign; a progressive reduction in their numbers or their constant absence from the serum is a bad sign.

Presse Médicale, Paris

XXII, Nos. 44-45, pp. 421-436

60 Umbilical Fistula Symptomatic of Tuberculous Process in Pubis. E. Kirmisson.
61 Colloidal Sulphur in Therapeutics. A. Martinet.
62 *Decompressive Trephining on Sound Side for Intracranial Hemorrhage. (Le coma dans l'hémorrhagie cérébrale.) P. Marie and M. L. Kindberg.
63 Congenital Disease of the Heart. (Pathogénie des affections congenitales du cœur.) M. Letulle.

62. **Trephining on Sound Side for Intracranial Hemorrhage.**—Marie and Kindberg remark that total coma is scarcely ever encountered except with intracranial hemorrhage. Complete unconsciousness can be due only to pressure on both hemispheres; the blood accumulated on one side pushes the hemisphere over on the sound side, and thus both suffer from the pressure, and total coma results. They give illustrations of the findings in the brain in a number of typical cases showing that total coma does not appear unless the sound hemisphere is compressed by the other being pushed over on it. This pressure can be relieved by making an extensive opening in the skull on the sound side. This is a harmless measure in comparison to the dangers in operating on the focus of the hemorrhage. It opens up only sound tissue while the hemorrhagic focus itself is left unmolested and further hemorrhage is not invited by any reduction of the pressure on the focus itself. The trephining can be done without general anesthesia and it may not be necessary to incise the dura.

Revue de Gynécologie, Paris

April, XXII, No. 4, pp. 273-368

64 The Conservative Tendency in Operative Treatment of Uterine Myomas. W. Falgowski.
65 Adenomas of the Umbilicus. M. Guibé.
66 Abdominal Wounds in the Field. (Les blessures de guerre de l'abdomen.) O. Laurent.

Revue Pratique d'Obstét. et de Gyn., Paris

May, XXII, No. 5, pp. 129-156

67 Abscess in Uterine Wall. (Les collections suppurées de la paroi utérine.) J. Roy.
68 Ovarian Cyst in Two Children. F. Potvin.
69 *Ovariectomy for Uterine Hemorrhage. (Valeur actuelle de la castration ovarienne dans les hémorrhagies des fibro-myomes.) de Rouville.

69. **Ovariectomy for Uterine Hemorrhage.**—De Rouville has removed both ovaries in seven cases for the purpose of arresting hemorrhage from fibromyomas in the uterus. In one case a scrap of ovary tissue was inadvertently left and this was enough to keep up the tendency to hemorrhages. Nothing of the kind occurred in any of the other cases. He was not able to detect any reduction in the size of the myomas but they lost their disposition to bleed after the ovaries were removed.

Semaine Médicale, Paris

June 10, XXXIV, No. 23, pp. 265-276

70 Operative Treatment for Incontinence of Urine and Genital Prolapse. R. de Bovis.

Archiv für klinische Chirurgie, Berlin

May 22, CIV, No. 3, pp. 581-842. Last indexed June 9, p. 1849

71 *Origin of Loose Bodies in Joints and Their Connection with Deforming Arthritis. G. Axhausen.
72 Chondroma in Joint Capsule. (Gelenkkapselchondrome.) A. Troell.
73 *Jejunal Ulcer. (Zur Kasuistik und chirurgischen Therapie des peptischen Jejunalgeschwürs.) K. Schwarz.
74 Experiences with Appendicectomy, 1898-1913; 641 Cases; Mortality 5.4 per cent. Zahradnicky.
75 Perinephritis from Perforation by Kidney Calculus; Three Cases. (Paranephritis durch Nierensteinperforation.) A. Hahn.
76 Splenectomy for Cystic Disease; Recovery. (Zur Kasuistik der Milzcysten.) H. Fossler.
77 *Ileosigmoidostomy for Intractable Constipation; Two Cases. E. Ruge.
78 *Value of Tuberculin Focal Reaction in Diagnosis of Puzzling Hip-Joint Disease. (Tuberkulinherdreaktion für die Diagnose unklarer Hüftgelenkserkrankungen.) W. Keppler and F. Erkes.
79 Actinomycosis of Shoulder Compelling Exarticulation. (Zur Entstehung der Aktinomykose.) W. Keppler.

71. **Treatment and Prevention of Loose Bodies in Joints.**—Axhausen devotes nearly a hundred pages to a discussion of the causes of deforming arthritis in the knee and describes eight typical cases with numerous illustrations. His plea is that trauma of some kind—known or ignored—is responsible for injury of the cartilage-covered surface of the femur near the space between the condyles and the rear surface of the patella. This injury is the source of the loose bodies in the knee-joint, and readily explains a large proportion of the cases of deforming arthritis in the young, even when no trauma is known. The practical conclusion is the necessity for operating to ward off the deforming arthritis when the course of the case shows that healing is not complete after the usual interval, or there are recurring pains and effusion. The joint injured is easily opened up through a lengthwise incision at the side of the patella, excising into sound tissue all abnormal cartilage showing fissures, softening or roughness or separation of the fibers.

73. **Jejunal Ulcer.**—Schwarz reports 10 cases and compares them with 146 on record. In only 80 of the total number of cases of peptic ulceration in the jejunum given operative treatment was improvement realized, and in a large number

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of these too short an interval had elapsed for a decisive judgment as to the outcome. In 25 cases the ulcer had entailed diffuse peritonitis by perforation; an operation was done in 9 cases, saving 7; 18 died. In 4 cases peritonitis followed without perforation; one patient was saved by evacuating a subphrenic abscess. In 53 cases the ulcer had eaten its way into the abdominal wall and 7 died notwithstanding one or more operations. The outcome is not known in most of the others. He had 7 of this type in his own 10 cases and cured 6 of them. In 27 other cases the ulcer invaded the chest wall, mesentery, liver or colon.

In prophylaxis he emphasizes that a peptic ulcer does not develop except where there is gastric juice which has not been "paralyzed" by the antipeptic protecting substance. In applying gastro-enterostomy provision must be made for a sufficient area of mucosa to supply an adequate amount of the protecting substance. When he encounters a recurring peptic ulcer following an anterior gastro-enterostomy, he closes it up, resects all morbid tissue and makes a new, posterior opening. Even much debilitated patients bore the operation surprisingly well and seem to be permanently cured. In the total 146 cases the age of the patients ranged from 2 months to 70 years; only 19 were women. He adds that he has also encountered a case of primary jejunal ulcer in a boy of 10.

77. **Operative Treatment of Intractable Constipation.**—Ruge describes a method of short-circuiting the bowel by an end-to-end ileosigmoidostomy, with a fascia strip thrown around the sigmoid flexure just above the junction and drawn merely tight enough to bring the mucosa walls together.

78. **Importance of Focal Tuberculin Reaction in Diagnosis of Hip-Joint Disease.**—Keppler and Erkes write from the university clinic at Berlin in charge of Bier to call attention to the characteristic changes in the focus after injection of 0.1 or 1 mg. of tuberculin in puzzling cases of hip-joint disease. This focal reaction develops in from six to twelve hours after the injection and usually lasts for a day or two. A positive focal reaction was obtained in 16 of the 41 cases of hip-joint disease tested, and the course confirmed the non-tuberculous nature of the trouble in the 25 negative cases.

Beiträge zur klinischen Chirurgie, Tübingen

XC, No. 2, pp. 247-514

80 *Compression of Tuberculous Lung by Extrapleural Filling. (Behandlung der Lungentuberkulose mit extrapleuraler Plombierung.) Sauerbruch.
81 Roentgenoscopic Diagnosis for Mechanical Treatment of Pulmonary Tuberculosis. H. Staub.
82 Pathologic-Anatomic Bases for Surgical Treatment of Pulmonary Tuberculosis. W. Jehn.
83 Modification of Serologic Reaction of the Blood after Extrapleural Thoracoplastics. T. Nargeli.
84 Roentgenologic Control of Action of Phrenicotomy. H. E. Walther.
85 Experimental Research on Intrathoracic Surgery of the Lungs. K. Henschen.
86 Trendelenburg's Operation for Pulmonary Embolism; Survival for Fifty Hours. Schumacher.
87 Traumatic Rupture of Mediastinal Pleura; Two Cases. (Ruptur des hinteren Mittelfells.) H. Freyse.
88 Transverse Resection of Larynx and Esophagus. W. Schelbert.
89 *Frequency of Secondary Gastric Cancer with Gastric Ulcer. A. Billeter.
90 Retroperitoneal Rupture of the Duodenum. R. Ke'ler.
91 Steeple Skull. (Zur Pathologie des Turmschädels.) T. Herzog.
92 Atrophy of the Prostate with Stenosis. J. Dubs.

80. **Mechanical Treatment of Pulmonary Tuberculosis.**—Sauerbruch expatiates on the advantages of combining several mechanical measures to ensure the compression of the diseased lung. A paraffin total filling had to be removed in one case, but the patient recovered after an extensive plastic operation on that side of the chest. Two other patients given the paraffin filling had certain disturbances, but not sufficient to call for removal of the filling.

89. **Secondary Gastric Cancer after Ulcer.**—All the thirteen articles of the *Beiträge* issue from the university surgical clinic at Zurich in charge of Sauerbruch. Billeter here reports the present condition of 116 patients out of 125 given operative treatment for gastric ulcer in the thirteen years before 1910. His data demonstrate that among these 116 patients a secondary cancer has developed during all these years only in one.

Berliner klinische Wochenschrift

June 1, LI, No. 22, pp. 1013-1060

93 Modern Methods of Studying the Physiology of the Brain. (Hirnphysiologie.) W. Trendelenburg.
94 *Influence of Muscular Exercise on Sugar and Lactic-Acid Content of the Blood. (Einfluss der Muskelarbeit auf den Gehalt des Blutes an Zucker und Milchsäure.) L. Lichtwitz.
95 *Action of Altitudes on the Perception and Will Power of Aviators. (Wirkung der Höhe auf das Seelenleben des Luftfahrers.) A. Loewy and S. Placzek.
96 *Feeding by Duodenal Tube. (Duodenalernährung.) E. Reuss.
97 *Influence of Spleen on Red-Corpuscle Production. (Einfluss der Milz auf die erythroplastische Tätigkeit des Knochenmarks.) H. Hirschfeld and A. Weinert.
98 Mechanism of Oxidation Processes in Animal Organism. L. Stern.
99 *Friedmann's Remedy. (Erfahrungen über die Behandlung der chirurgischen Tuberkulose mit F. F. Friedmann's Heil- und Schutzmittel.) F. Karewski. Concluded in No. 23. (Das F. F. Friedmann'sche Heil- und Schutzmittel zur Bekämpfung der Tuberkulose.) P. Wichmann.

June 8, No. 23, pp. 1061-1108

100 *The Prognosis in Morphin Addiction. H. König.
101 Changes in Tissues and Tumors after Radiotherapy. (Veränderungen der Gewebe und der Geschwülste nach Strahlenbehandlung.) D. V. Hansemann.
102 Duodenal Ulcer. F. H. v. Tappeiner.
103 Erysipelas of Anemia Type. E. v. Czyhlarz.
104 Intra-Uterine Forceps. K. Neuwirth.
105 Psychic Research. (Zur Kritik des Hellsehens, der Ahnungen und des Gedankenlesens, sowie der denkenden Tiere u. a.) R. Meyer.

94. **Influence of Muscular Exercise on the Sugar Content of the Blood.**—Lichtwitz gives the details of the technic and findings in regard to the changes in the sugar and lactic-acid content of the blood in seven healthy persons and twelve patients exercising with the ergostat until fatigued. He recommends the method as useful to test whether a diabetic is favorably or unfavorably influenced by exercise, and the amount he can stand without harm.

95. **The Psychic Factors in Aviation.**—Loewy and Placzek report a series of tests of the attention and other psychic phenomena on themselves and two others in a cabinet with an atmospheric pressure corresponding to that of an altitude of 4,000 meters. The objective findings were comparatively slight although mistakes in doing sums were more frequent the more rarefied the air. But the sensation of being incapable of giving close attention, of being unable to act promptly and with precision—these subjective factors were pronounced, and even a subjective sensation of the kind has always more or less of a paralyzing effect and may serve to explain some of the fatalities to aviators for which the machines were not responsible. The effects in these tests were the more significant as the subjects were quiet, warm and free from responsibility in the pneumatic cabinet. Compare this with the condition of the aviator, they remark, the rapid changes in altitude causing physical disturbances and weakening the will power while the wind makes it hard to breathe and chills the surface, and finally paralyzes the peripheral vessels so that the blood pours into them and the brain, etc., become anemic. They think that the death of Chavez, for instance, was due to these causes as he strove to break the altitude record. They warn aviators against high altitudes and urge them to train themselves to bear abrupt changes in atmospheric pressure.

96. **Feeding through the Duodenal Tube.**—Reuss says that this method of feeding has solved the problem of nourishing the patient while leaving the stomach at rest, and reports the metabolic findings showing the excellent utilization of the food thus supplied. He gives mostly milk and cream with sugar and sometimes a sweet wine, commencing with small amounts, but by the end of the week reaching the full ration. As the stomach is always empty of food, drugs act on an ulcer more effectually, and he thinks duodenal feeding should be given a thorough trial before operating for rebellious gastric ulcer. He never witnessed any injury from the tube in his four cases, all women but one.

97. **Influence of Splenectomy on Blood-Production.**—Hirschfeld and Weinert had opportunity to study the red-corpuscle production after splenectomy in fifteen cases and found that it had a marked influence on the appearance of Jolly bodies. There is evidently some close connection between the spleen and these bodies, and their behavior in anemias should receive more attention.

99. **Friedmann's Remedy for Tuberculosis.**—Karewski states that he applied Friedmann's remedy only to patients who did not need local measures at the time, and thus only in the cases with a more favorable prognosis—a total of fifty cases of surgical tuberculosis. With the exception of one case, no manifest improvement was evident in any instance while the reactions were severe in a number of cases, chills, temperature up to 41.1 C. (106 F.), fever for days, vomiting, and in five cases delirium. Some patients lost flesh, one 3 pounds in five days, and a number felt sick for a long time afterward. One patient developed a pyemic condition, involving previously sound joints, with pneumonia. The remedy, as marketed, he declares, is thus a dangerous preparation (*ein gefährliches Mittel*). The one patient whose condition improved was a robust young woman with a tuberculous process in the wrist which improved after three injections of the remedy and complete rest for nearly four months. He compares the improvement in this case with the cure in another similar case under mere fixation and exposure to the sunshine without further measures, the patient weakly and with an apical process besides. No other patient displayed any lasting improvement from Friedmann's remedy; and judging from his experience, he remarks, no other method of treatment has so little benefit to show as Friedmann's. It does not ward off recurrence, it is not a tonic, it does not confer immunity, and it is not harmless.

Wichmann's seven patients with lupus were given the treatment by Friedmann himself. Reactions with chills, fever to 40.5 C. (105 F.) and general malaise were numerous. Wichmann says that his experience shows that the remedy is liable to activate and spread an existing tuberculosis; that any protecting action on its part against tuberculosis has not been demonstrated in any instance, but that a curative action from it is possible. In four of his seven patients the condition became permanently much worse after the injections, the disease being evidently activated and invading new territory.

[In the same number of the *Wochenschrift*, among the society transactions, Steinitz reported twenty cases of pulmonary tuberculosis; no benefit and no manifest injury, although in some cases the possibility of an unfavorable influence was suggested. He adds that the absence in his cases of the disagreeable byeffects mentioned by all the other Berlin physicians who have reported on the remedy may be due to the fact that he made a point of injecting the remedy the same day it was received. He, like Karewski, had tuberculous mastitis develop in one case about three months after the intravenous injection. He reiterated in conclusion that the remedy cannot be called free from danger for all cases.

Brühann of Osterburg and Isaac reported a favorable influence from the remedy in their cases of lupus; the former in seven, the latter in nine cases of lupus. Brühann stated that in none of his fifty-five cases, including forty-eight of pulmonary tuberculosis, was any harm from the remedy observed, while Isaac emphasized that the remedy has an unmistakable action on lupus and on verrucous tuberculosis of the skin, but in no case was there an actual cure. One girl reacted with temperature of 42 C. (107.6 F.) and hemorrhage in the kidney, and another lost considerable flesh and grew very weak, suffering for a long time from these after-effects of the remedy.]

100. **Prognosis with Morphin Addiction.**—König emphasizes that the outlook naturally varies according as the addiction was acquired in connection with a chronic painful affection such as tabes, neuralgia or peritoneal adhesions, or with single periods of pain, such as gall-stone colic, or in connection with periods of melancholy or insomnia. He reviews his experience with 28 cases, demonstrating a successful outcome in over 50 per cent. of the 14 in the gall-stone group. The treatment required from three to ten months in these cases.

Deutsche medizinische Wochenschrift, Berlin

June 11, XL, No. 24, pp. 1201-1248

106 *Treatment of Acute Miliary Tuberculosis. Grober.
107 Sterilization of Vaccines with Ultraviolet Rays. (Neue Methode, Vakzine ohne Zusatz von Desinfizientien unter Erhaltung der Virulenz keimfrei zu machen.) E. Friedberger and E. Mironescu.
108 *Roentgenography of Liver, Spleen and Diaphragm. (Röntgenphotographie der Leber, der Milz und des Zwerchfells.) E. Rautenberg.
109 *Pancreas Disturbance Secondary to Disease of Stomach or Bile Apparatus. (Pankreasachylie und akute Pankreatitis.) A. Schmidt.
110 *Duodenal Ulcer. H. Kümmell. Commenced in No. 23.
111 Passive Transmission of Protective Ferments. (Passive Uebertragung der sog. Abwehrfermente.) A. E. Lampé.
112 Cholesterol as Factor in Arteriosclerosis. (Bedeutung des erhöhten Cholesteringehaltes für die Entstehung der Aortenatherosklerose.) N. Anitschkow.
113 *Experiments on Guinea-Pigs with Friedmann's Remedy. (Tierversuche mit den Bazillen des Friedmannschen Tuberkuloseheilmittels.) E. Baumann.
114 Capillary Aspiration of Ascites. (Kapillarpunktion des Ascites.) Buth.
115 Asynchronism of Ventricle Functioning. S. La Franca.
116 Urease (Soy Bean Extract) as Test for Urea in Body Fluids. (Darstellung fester Urease und ihre Verwendung zur quantitativen Bestimmung von Harnstoff im Harn, Blut und in der Zerebrospinalflüssigkeit.) D. D. van Slyke, G. Zacharias and G. E. Cullen (New York).
117 Colloidal Gold as Reagent in Serodiagnosis. (Kolloidale Goldlösung als Reagens für die A. R.) J. Matzkiewitsch.

106. **Acute Miliary Tuberculosis.**—Grober emphasizes the importance of symptomatic measures and means to maintain the patient's strength with nourishing, appetizing food. He knows of a case in which the disease lasted for seven months, with two such pronounced remissions that they amounted to a temporary clinical cure.

108. **Oxygen as Aid in Roentgenoscopy of the Liver, Spleen and Diaphragm.**—Rautenberg relates that after tapping patients with ascites he injected from 1 to 6 liters of oxygen, after which it was easy to outline the liver, spleen and diaphragm with the Roentgen rays and show adhesions. The procedure is facilitated by examining the patient both erect and reclining on his left side, after thorough evacuation of the bowels. Without ascites the technic is similar to that with induced pneumothorax.

109. **Pancreatic Disturbances.**—Schmidt seeks to differentiate between defective secretion in the pancreas and acute inflammation, reporting typical cases of each. With pancreas achylia, the stools show the characteristic findings. The mild form of acute pancreatitis has in addition the stormy onset with pains, slight rise in temperature and steatorrhea with much free fat acids, while the creatorrhea is less pronounced than with functional disturbances alone. The lack of hydrochloric acid—the most powerful stimulant for trypsin production—explains the findings with gastric achylia, while disturbance in the biliary apparatus modifies the bile—the most powerful stimulant for the other pancreas ferments.

110. **Duodenal Ulcer.**—Kümmell compares duodenal ulcer with appendicitis, stating that a complete spontaneous cure is as little liable with one as with the other. The tendency to spontaneous healing is much less than with gastric ulcers. In his sixty-five operations for duodenal ulcer he always made a posterior gastro-enterostomy, with one exception, and threw a ligature around the pylorus. He generally used for this a strip of the ligamentum teres. Two patients succumbed to postoperative pneumonia; the others seem to have been permanently cured by the operation, omitting from the record fifteen patients with severe peritonitis from the perforated ulcer when first seen.

113. **Friedmann's Remedy.**—Baumann reports that the therapeutic application of Friedmann's bacilli to nine guinea-pigs previously infected with human tubercle bacilli hastened the fatal outcome instead of retarding it. He obtained the bacilli from the sediment in an ampule of the Friedmann

remedy centrifugated without opening. The bacilli from the sediment in their response to the usual tests seemed to stand midway between human and cold-blooded animals' tubercle bacilli. They grew luxuriantly and the guinea-pigs were inoculated with an eight-day culture of this strain. The eight controls survived considerably longer than those thus treated. These experiences do not harmonize with Friedmann's statement in 1903 that "by preliminary treatment in the way of isopathic self-immunization he succeeded in conferring quite a high degree of protective immunity on the most susceptible of our laboratory animals, the guinea-pig, against a following virulent infection with human tubercle bacilli."

Münchener medizinische Wochenschrift, Berlin

June 2, LXI, No. 22, pp. 1209-1264

118 Further Research on Protective Ferments. (Das Verhalten von Tieren, die plasmafremde Substrate nebst den zugehörigen Fermenten resp. nur erstere allein im Blute besitzen, gegenüber der parenteralen Zufuhr bestimmter Peptone, Proteine und Serumarten.) E. Abderhalden and L. Grigorescu. (Zur Frage der Spezifität und klinischen Brauchbarkeit der Abderhaldenschen Reaktion.) F. M. Betz and Others.

119 *Potassium Permanganate Reaction in Pathologic Cerebrospinal Fluid. P. Boveri.

120 *Lange's Colloidal Gold Reaction in Cerebrospinal Fluid. (Die Goldsolreaktion im Liquor cerebrospinalis.) M. de Crinis and E. Frank.

121 *Carbohydrates in Diabetic Diet. (Die gemischte Amylazeenkur bei Diabetes mellitus.) W. Falta.

122 Clinical Importance of Roentgenoscopic Outline of Heart. (Herzsilhouette.) R. Geigel.

123 Salvarsan and Neosalvarsan in Office Practice. K. Rühl.

124 Radiotherapy of Cancer. (Probleme der Krebsbehandlung im Zeichen der Radiotherapy.) F. König.

125 Operation versus Radiotherapy. C. Müller.

126 Local Anesthetic to Combat Photophobia with Conjunctivitis. (Lichtscheu bei Conjunctivitis ekzematosa.) H. Peterka.

127 Inward Prolapse of Lining of Lower Intestine. (Innere Prolapszustände der Schleimhaut der Flexura sigmoidea und des Rektums.) A. Reizenstein.

128 Toxic By-Effects of Embarim. G. Merzbach.

129 Tonsillectomy. (Plastische Variation bei der extrakapsulären Totalexstirpation der Tonsille.) G. Trautmann.

130 To Prevent Breakage of Cover-Glasses. (Verhütung des Bruches beim Deckglaschenreinigen.) Böttcher.

131 The State Orthopedic Clinic at Munich. F. Lange.

June 9, No. 23, pp. 1265-1320

132 *Gastric Ulcer Result of Erosion from Trypsin. B. Stuber.

133 *Pathology of Nephritis and Functional Diagnosis. H. Machwitz, M. Rosenberg and J. Tschertkoff.

134 Sources of Error in Radioscopy of the Heart. (Fehlerquellen der klinischen Herzgrössenbestimmung.) E. Müller.

135 *The Luetin Test in Syphilis. (Luetinreaktion nach Noguchi.) J. N. Muscel, C. A. Dersca and L. Friedmann.

136 Traces of Blood in Tissues Used for Serodiagnosis a Source of Error. (Abderhaldensche Fermentreaktion.) W. Lahm.

137 *Diet Which Keeps Urine Alkaline Wards Off Joint Trouble. (Entstehung der Arthritis.) R. Berg.

138 Symptoms from Congenital Dilatation of Duodenum. A. Schmidt and A. Ohly.

139 *Treatment of Pernicious Anemia. H. Flörcken.

140 Scorbutus in German Africa. (Zur Skorbutätiologie.) E. Scherer.

141 Peritonsillar Abscess. Levinger.

142 Differentiation of Soft Chancre and Primary Lesion of Syphilis. (Ulcus molle oder Primäraffekt.) H. Müller.

119. **Color Reaction in Cerebrospinal Fluid.**—Boveri writes from Milan to call attention to the decoloration which occurs in a pathologic cerebrospinal fluid when 1 c.c. of a 0.1 per thousand solution of potassium permanganate is poured into a small test-tube containing 1 c.c. of the fluid being examined. There is a zonal reaction at the point of contact, but the global reaction when the tube is shaken is more distinct. The fluid turns a bright yellow while it retains its pinkish-violet tint unmodified if the fluid is normal. The findings with this test harmonized constantly with those of the Nonne, Noguchi and other tests, but it seems to be much more sensitive than these others.

120. **The Colloidal Gold Reaction in Cerebrospinal Fluid.**—De Crinis and Frank report their experience with Lange's gold test. It confirms, they say, that this test is by far the most sensitive of all methods for detecting pathologic changes in the fluid. They obtained constantly positive results in 120 cases of paresis, tabes or brain and spinal syphilis, even when the findings were negative with other tests in some of the cases. The findings were positive also in all their 4 cases of multiple sclerosis, 2 of chorea and 2 of purulent meningitis, but were constantly negative in 19 healthy controls and in 1 case of acute poliomyelitis.

121. **Mixed Starch Diet in Diabetes.**—Falta tabulates the details of the diet, the sugar and ketone output and weight in four severe cases of diabetes to emphasize the importance of excluding from the diet all forms of animal albumin while carbohydrates can be taken in the form of different starches, either entirely as gruels or partly in bread or crackers. This means excluding all meat, eggs, cheese and milk, and interposition of "vegetable days" or "fasting days." The benefit from a diet on these principles is not striking at first, but it gradually leads to permanent improvement. Fasting for even half a day may aid materially. Eight of his twenty diabetic patients treated on these principles were between 12 and 25. Some had such intense acidosis that a tendency to comatous conditions developed when the diet was restricted too rigorously.

132. **Trypsin Responsible for Gastric Ulcer.**—Stuber announces that trypsin getting into the stomach is the cause of the digestion of the stomach wall which we know as gastric ulcer. He induced insufficiency of the pylorus in five dogs, permitting reflux of intestinal juices. While a variety of control tests always gave negative findings, there was constantly ulceration in the stomach when conditions were realized which guaranteed an increased and frequent reflux of intestinal ferments into the stomach. When the pancreas was shut off no ulceration occurred unless trypsin was fed by the mouth, when ulceration followed inevitably. Gastric ulcer is hence a tryptic ulcer, he declares; the causal insufficiency of the pylorus in clinical cases may be of purely nervous origin. The old idea that hyperchlorhydria must necessarily precede the gastric ulcer has been shown to be erroneous by the number of cases that have been recorded recently with subnormal or total lack of gastric secretion; the hyperchlorhydria is more likely to be a secondary phenomenon.

133. **Tests of Kidney Functioning.**—Of all the various methods of estimating the functional capacity of the kidneys, Machwitz and his coworkers think that the amount of retention of nitrogen is by far the most instructive. It is an index of the functioning of the vascular system in the kidneys. In chronic nephritis it therefore serves to reveal the degree of insufficiency of this apparatus. The iodin and lactose tests they regard as of very little aid for either treatment, diagnosis or prognosis. Estimation of the retention of salt is important for treatment but not from the other standpoints, but tests for the elimination of water and for the power of concentration of the urine are instructive as to the presence or absence of insufficiency in the chronic vascular forms of nephritis and sclerosis.

135. **The Luetin Reaction in Syphilis.**—This communication from Bucharest states that the luetin test applied to 62 syphilitics and 93 patients with other diseases gave positive reactions in 89 per cent. of the cases of syphilis in the tertiary phase, in 20 per cent. of the cases of tabes, in 47 per cent. of the secondary phase cases and in only 2 per cent. of the supposedly non-syphilis cases.

Comparison with the Wassermann test showed the luetin positive in 2 cases of secondary syphilis in which the Wassermann was negative while in the tertiary phase there were 12 cases in which the Wassermann was negative and the luetin positive out of the total 37 in this stage. These findings suggest, they say, that luetin is the more sensitive and reliable test in syphilis in the third stage or in a latent form.

137. **Origin and Prevention of Arthritis.**—Berg theorizes and then presents concrete examples to demonstrate the possibility of warding off gout and other joint diseases in many instances by a rational diet. By this he means a diet which reduces the production of uric acid. The potency of the diet in this respect can be estimated by the reaction of the urine to neutral tincture of litmus. With a suitable diet the urine will turn the litmus solution blue while the reaction will be acid on an unsuitable diet. This indicates

that an excess of uric acid is being produced and that the urine is being oversaturated with the uric acid. There is no precipitation of phosphates and carbonates in urine giving an alkaline reaction under normal conditions, and the putrefying properties of the urine seem less. He thinks there is reason to assume that the endogenous production of uric acid can thus be kept within normal bounds with care as to diet. The so-called exogenous production of uric acid is far more likely to be almost exclusively of endogenous origin from abnormal secretion of digestive juices in response to unsuitable food.

139. **Pernicious Anemia.**—Flörcken reports four cases of pernicious anemia which demonstrate that thorium X may have a pronounced beneficial action for a time, inducing prolonged remissions. No cure was realized and in one of his cases the thorium seemed to aggravate the condition. Splenectomy was done as a last resort in one case but the patient died within an hour. In the fourth case, after a remission of four months had been induced under thorium, the spleen was removed on return of symptoms and the man has been in apparent health during the seven months to date; the hemoglobin increased from 10 to 40 per cent. and the reds are in normal numbers, with no megaloblasts or normoblasts and only slight poikilocytosis and very few Jolly bodies. The spleen in both cases was only moderately enlarged and no special changes could be found with the microscope. Direct transfusion of blood gave but transient benefit in the two cases in which it was applied.

Zentralblatt für Chirurgie, Leipsic

May 30, XLI, No. 22, pp. 929-968

143 Osteoplastic Bone Flap from Vertebral Process. (Osteoplastische Knochenlappenbildung aus den Dornfortsätzen der Wirbelsäule.) Borchard.
144 *Symptom of Fracture of the Patella. L. Dreyer.

June 6, No. 23, pp. 969-1016

145 Diverticulum Developing in Stomach from Peptic Ulcer; Two Cases. K. Borszeky.
146 Infectious Diseases as Factor in Varices. D. G. Zesas.

144. **Symptoms of Fracture of Patella with Intact Muscle Apparatus.**—Dreyer illustrates a case to show the possibility of differentiating between cases which can be treated conservatively and those for which an operation will probably be required sooner or later. Roentgenoscopy ten days after the fracture showed a gap of 1 cm. and the man was totally unable to extend his knee. The fracture was treated by extension applied to the thigh alone, and it was found that the patient was then able to lift up his leg. If the weight was removed he could not do this at all. It was evident, therefore, that the supposed laceration of the stretching apparatus did not exist in fact, and was only simulated. Treatment therefore was conservative and the cure was soon complete. Dreyer advocates the extension bandage even when an operation is necessary, declaring that it protects better than plaster or splints against the tearing out of the suture.

Zentralblatt für Gynäkologie, Leipsic

May 30, XXXVIII, No. 22, pp. 793-832

147 Shape of Fetal Skull with Contracted Pelvis. (In der Schwangerschaft konfigurierte Schädel bei engem Becken.) Walcher, Jr.
148 Silver Salt in Salve Vehicle for Roentgenoscopic Diagnosis of Uterine Tumors. S. Stiassny.
149 Case of Pregnancy Neuritis. (Polyneuritis gravidarum.) A. Farani.

June 6, No. 23, pp. 833-964

150 Improved Technic for Watching over Sponges at Laparotomies. (Verfahren zur Kontrolle der Tupfer bei Laparotomien.) P. v. Kubinyi.

Gazzetta degli Ospedali e delle Cliniche, Milan

XXXV, Nos. 65-68, pp. 681-728

151 Lipoid Substances in the Blood-Corpuscles. (Ricerche istochimiche sulle sostanze lipoidi degli elementi morfologici del sangue.) N. Barbaro.
152 *Hydrocele as First Symptom of Polyserositis or Other Disease. (Sull'importanza prognostica dell'idrocele idiopatica e circa la tubercolosi del sacco erniario.) N. Federici.
153 Severe and Rebellious "Sciatica" Cured by Removal of Subfascial Lipoma in the Foot. R. Casali.
154 Psychoses in Course of Malta Fever. A. Cantani.

152. **Hydrocele as Sign of General Disease.**—Federici called attention fourteen years ago to a case in which pleurisy with effusion followed on the heels of a hydrocele and polyserositis on the pleurisy. A so-called idiopathic hydrocele may prove the primary manifestation of tuberculosis, so that he urges the importance of testing for tuberculosis in every case of hydrocele of obscure origin. A tuberculous process in a hernial sac also comes into this same category of possible primary manifestations of unsuspected or latent tuberculosis.

Policlinico, Rome

May 24, XXI, No. 21, pp. 741-776

155 Phlebitis in Malta Fever; Two Cases. A. Cantani.

May 31, No. 22, pp. 777-812

156 Influence of Bile Pigments and Heat on the Urochromogen Reaction. (Influenza dei pigmenti biliari e del riscaldamento sulla reazione di Moriz Weisz.) S. Valbusa.
157 The Conditional Reflexes. (Nuovi orizzonti per lo studio dei fenomeni neuro-psichici.) Dragotti.

Riforma Medica, Naples

May 30, XX, No. 22, pp. 589-616

158 Experimental Study of Effect of Tobacco Smoke on Animals. (Sull azione del fumo di tabacco comune e attenuato di nicotina.) C. Carginale.
159 Unusual Symptoms and Complications of Malta Fever. A. Cantani.

St. Peterburger medizinische Zeitschrift

April 28, XXXIX, No. 8, pp. 97-110

160 *Radium in Treatment of Uterine Cancer. T. Dobbert.
161 Malignant Granuloma; Nine Cases. A. Bertels.
162 Induced Pneumothorax. E. Zimmermann.

160. **Radium for Uterine Cancer.**—Dobbert reports 44 cases and gives the details of a typical case out of each variety of cancer. The prompt subsidence of the pain after one or two applications of the radium is a remarkable feature of the treatment. The patients are no longer kept awake by the pain, and they begin to improve at once. A subfebrile rise in temperature is common, and chills were occasionally observed, with other signs of severe intoxication. Symptoms of irritation on the part of rectum and bladder were frequently noted; in a few rare instances the patients became nervous and sleepless. In one inoperable case the infiltration entirely disappeared and in 5 it subsided materially, the cancer becoming operable in two. In 3 cases no change could be detected, and in 4 the cancer became aggravated.

Hospitalstidende, Copenhagen

June 3, LVII, No. 22, pp. 705-736

163 Serodiagnosis of Pregnancy. (Abderhaldens Reaktion.) S. Kjærgaard. Commenced in No. 21.

Norsk Magazin for Lægevidenskaben, Christiania

June, LXXV, No. 6, pp. 649-744

164 Osteomyelitis Developing after Trauma. (Osteomyelit som følge av ulykkestilfælde.) P. Bull.
165 History of Anthrax Bacillus. (Miltbrandbacillens opdagelse.) O. Malm.
166 Tuberculous Peritonitis without Clinical Manifestations. S. Widerøe.
167 Ileus from Stenosis of Splenic Flexure; Two Cases. S. Widerøe.
168 *Retroplacental Hemorrhage with Normally Situated Placenta. (Retroplacentær blødning.) K. Brandt.

168. **Retroplacental Hemorrhage.**—Brandt's patient was a primipara of 30 and the hemorrhage from premature separation of the normally situated placenta was so serious that cesarean section had to be done at once. The uterine wall was the seat of hemorrhages similar to those encountered in the liver with eclampsia. He gives the details of fourteen other cases all terminating favorably for the mother, but ten of the children died; in some of the cases the pregnancy was only at the thirty-second week.

Ugeskrift for Læger, Copenhagen

May 21, LXXVI, No. 21, pp. 971-996

169 Idiosyncrasy to Milk in Young Infants. (Komælksidiosynkrasi hos spæde Børn.) P. Hertz.
170 Negative Results of Electrophoresis in Attempt to Eradicate Diphtheria Bacilli from Tonsils. J. R. Kragh.